

09/463776

1 / 55

FIG.1

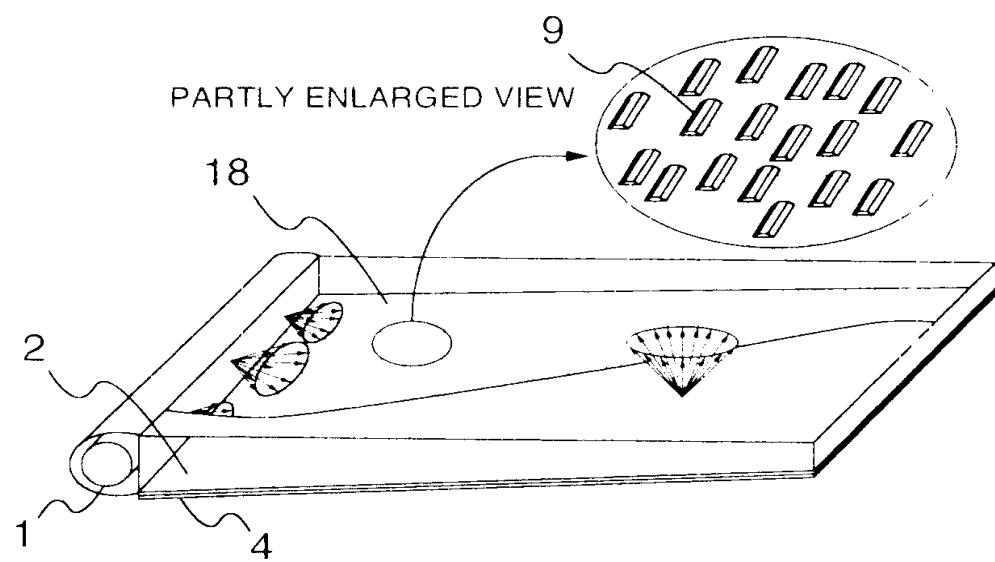


FIG.2

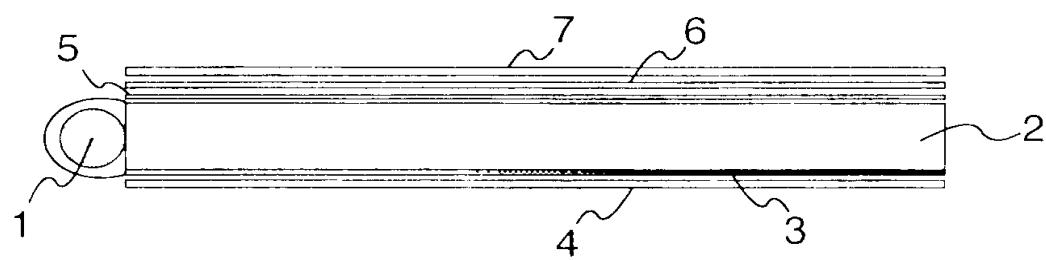


FIG.3

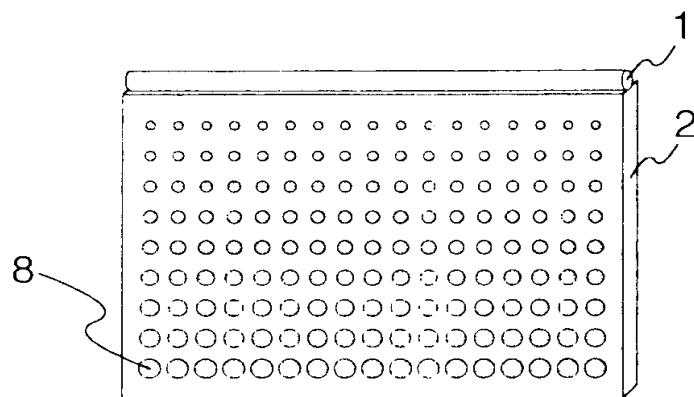


FIG.4

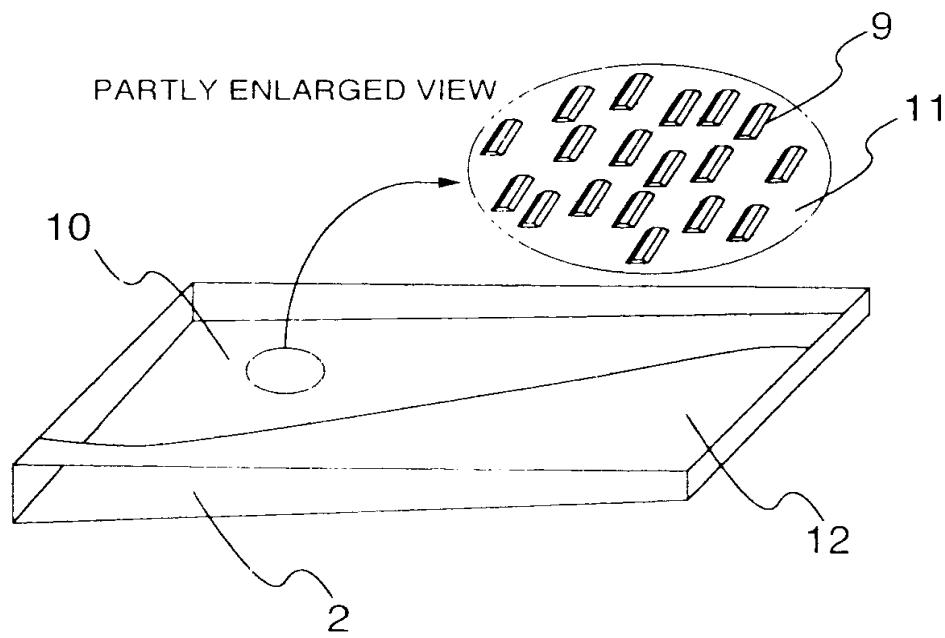


FIG.5

KIND OF DOT	SMALL PROJECTING PORTION OR SMALL RECESS PORTION		
REFLECTING FILM	NO		YES
ANGLE OF INCLINE OF INCLINED SURFACE OF DOT	7~43°	50~85°	30±10°
DISTRIBUTION OF ANGLES OF INCLINE OF INCLINED SURFACES OF DOTS	ANGLE OF INCLINE IS SMALLER AS CLOSER TO LIGHT SOURCE		
HEIGHT AND DEPTH OF DOT	2-100 μ m		
DISTRIBUTION OF HEIGHTS AND DEPTHS OF DOTS	HEIGHT AND DEPTH ARE LOWER AS CLOSER TO LIGHT SOURCE		
SHAPE OF FLAT SURFACE OF DOT	CIRCLE OR SUBSTANTIALLY RECTANGULAR SHAPE		
DISTRIBUTION OF DENSITIES OF DOTS	DENSITY OF DOT IS SMALLER AS CLOSER TO LIGHT SOURCE		
DISTRIBUTION OF SHAPES OF DOTS	AREA OF DOT IS SMALLER AS CLOSER TO LIGHT SOURCE AREA OF DOT IS SMALLER AS PORTION REQUIRES CONFUSION		
SIZE	\leq 0.2 SQUARE mm		
ARRANGEMENT OF DOT	RANDOM OR NON RANDOM IN CASE SHAPE OF FLAT SURFACE IS RECTANGULAR, ARRANGEMENT IS MADE SO THAT LONGER LINE IS SUBSTANTIALLY IN PARALLEL TO LIGHT SOURCE		
SUB MATERIAL	REFLECTING PLATE LIGHT CONDENSING PLATE (DIFFUSION PLATE)	REFLECTING PLATE (LIGHT CONDENSING PLATE) (DIFFUSION PLATE)	REFLECTING PLATE (LIGHT CONDENSING PLATE) (DIFFUSION PLATE)

FIG.6

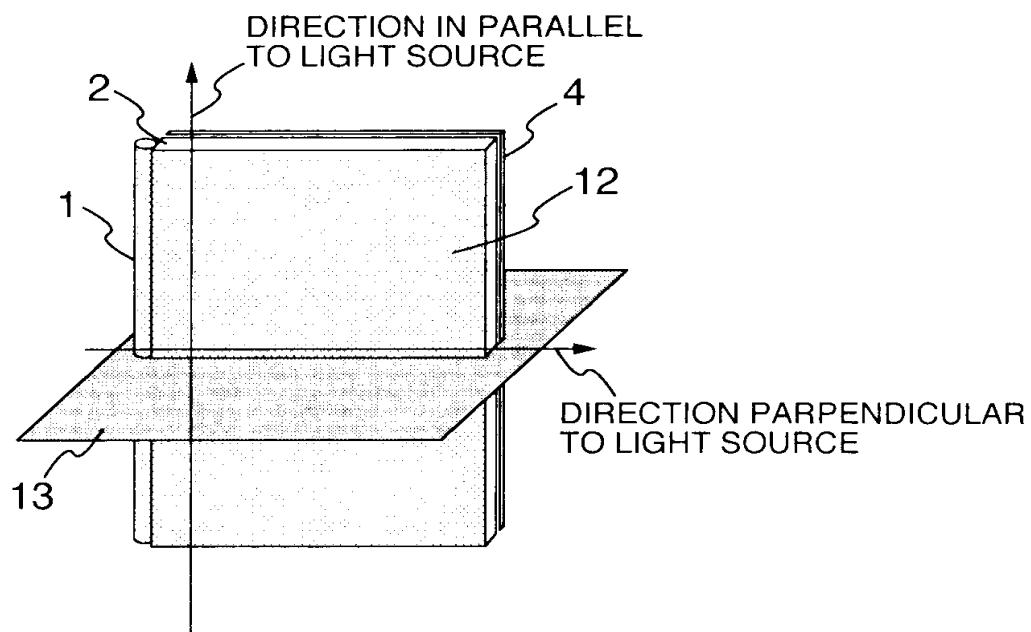


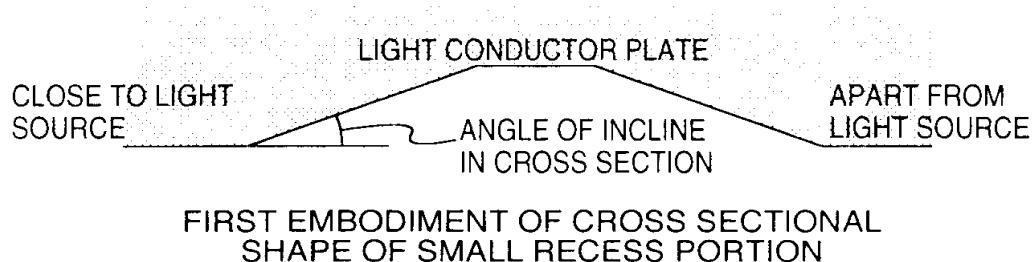
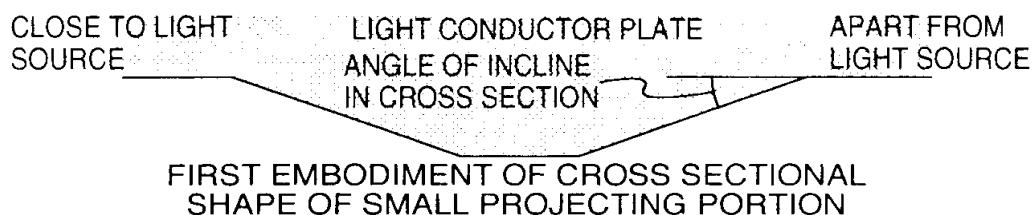
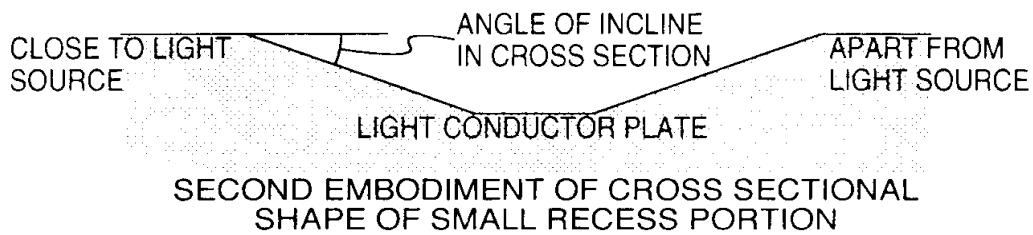
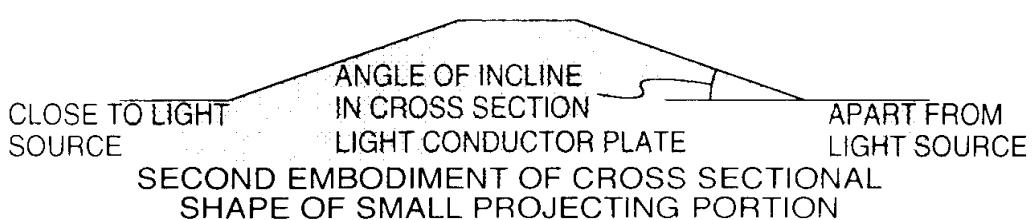
FIG.7A**FIG.7B****FIG.7C****FIG.7D**

FIG.8A

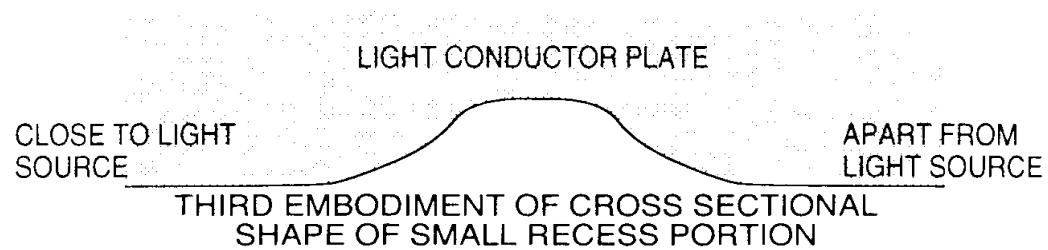


FIG.8B

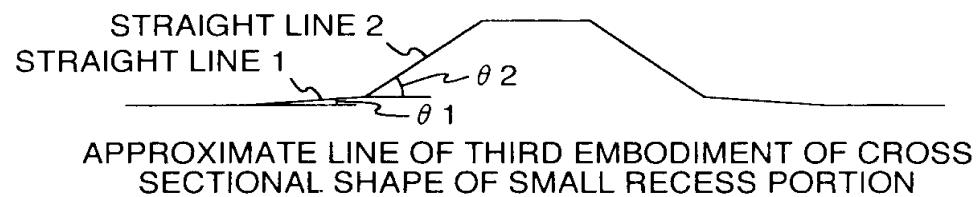


FIG.8C

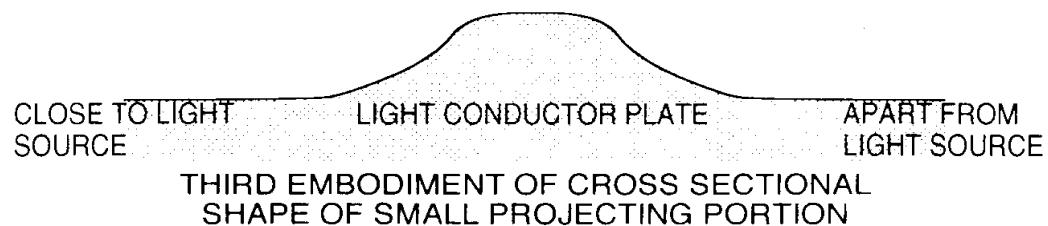


FIG.8D

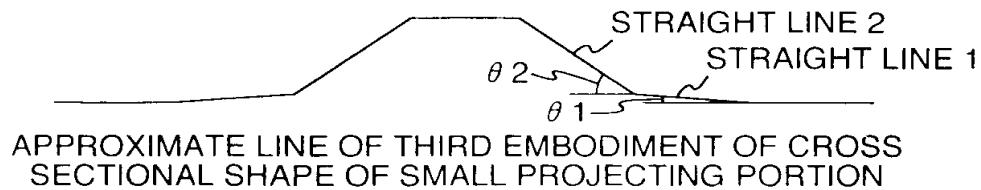


FIG.9A

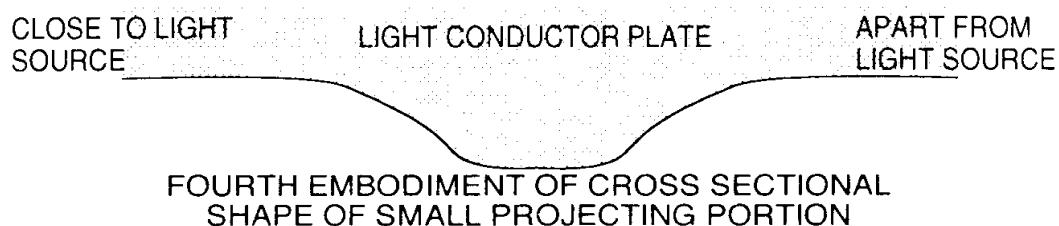
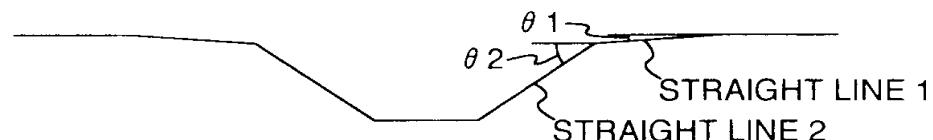


FIG.9B



APPROXIMATE LINE OF FOURTH EMBODIMENT OF CROSS SECTIONAL SHAPE OF SMALL PROJECTING PORTION

FIG.9C

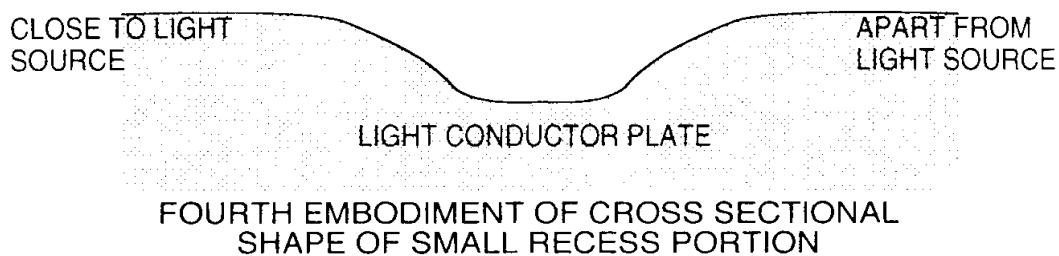
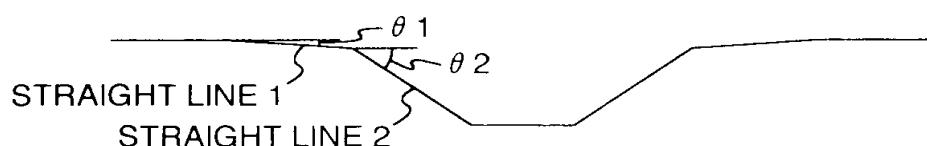


FIG.9D



APPROXIMATE LINE OF FOURTH EMBODIMENT OF CROSS SECTIONAL SHAPE OF SMALL RECESS PORTION

FIG.10A

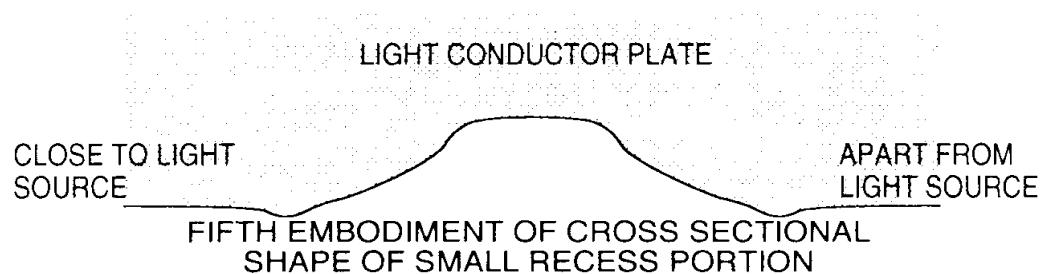


FIG.10B

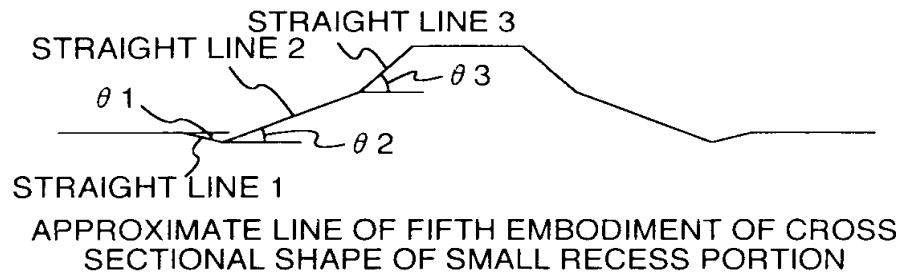


FIG.10C

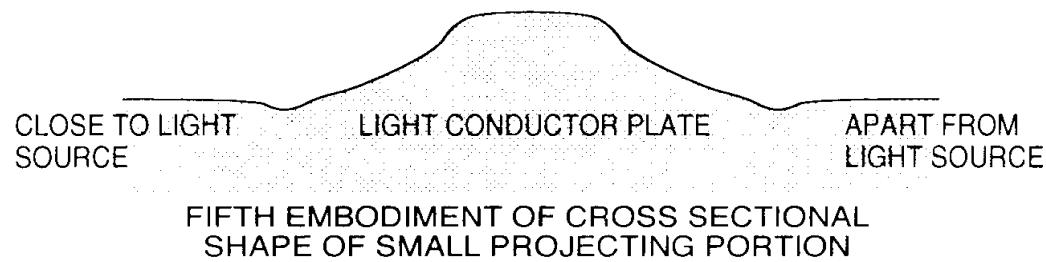


FIG.10D

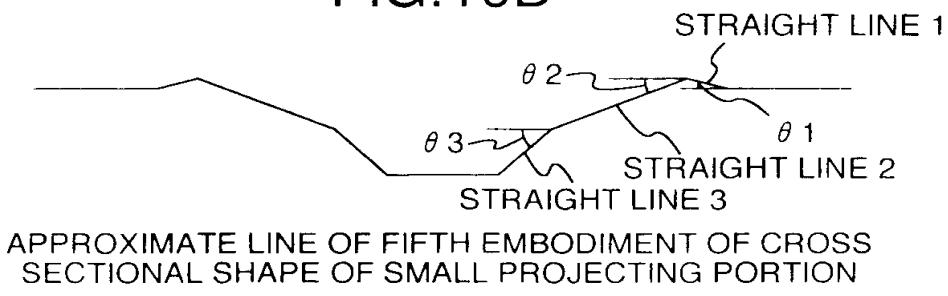


FIG.11A

EXPLANATORY VIEW NO.5 OF ANGLE OF INCLINE

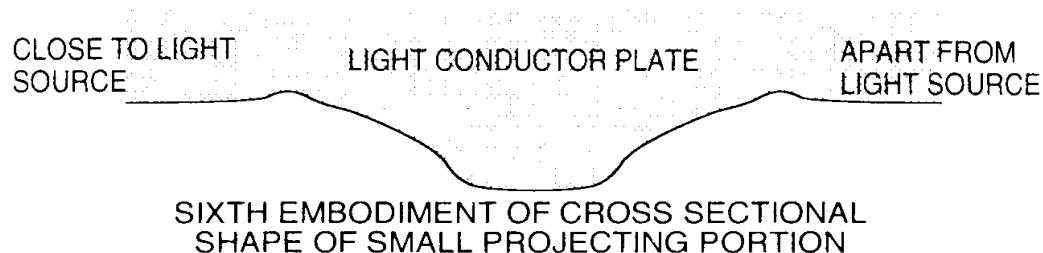
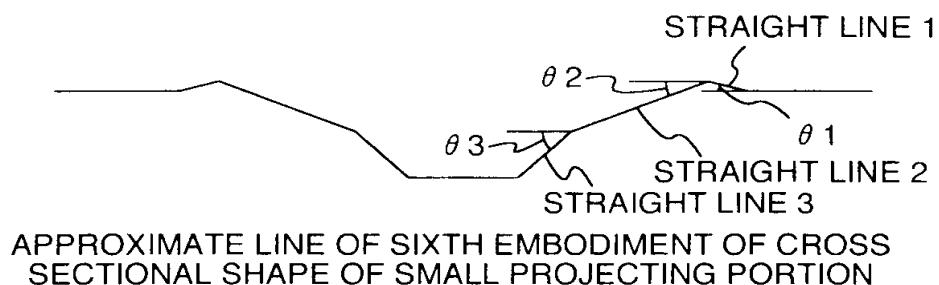
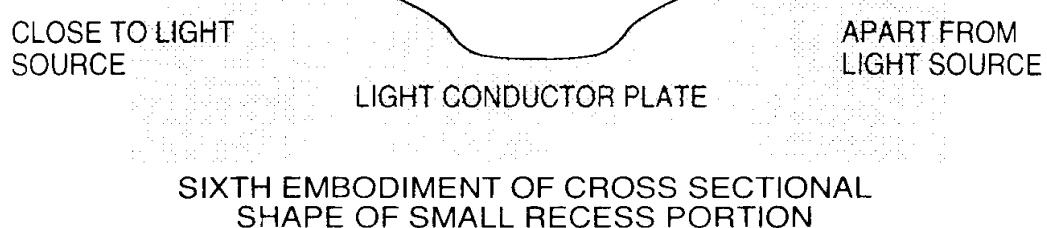
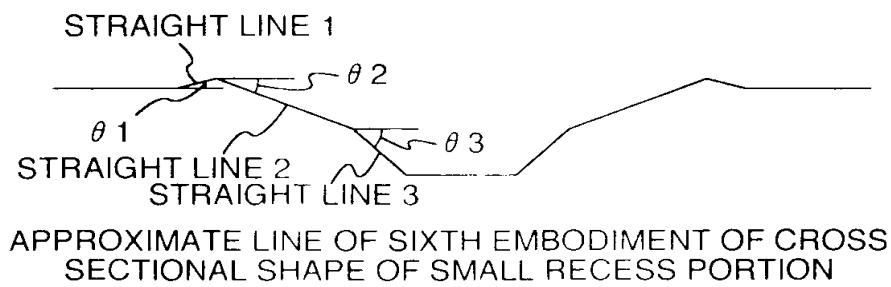
**FIG.11B****FIG.11C****FIG.11D**

FIG.12A

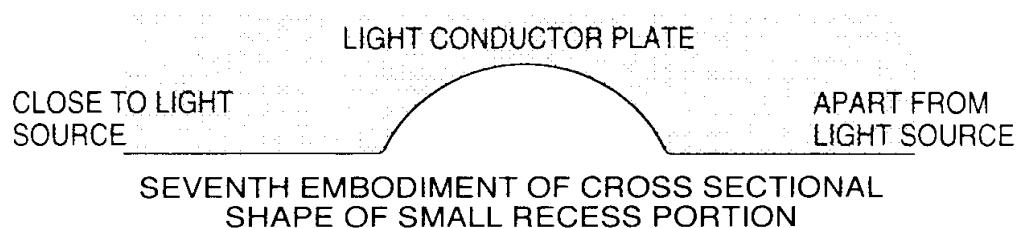


FIG.12B

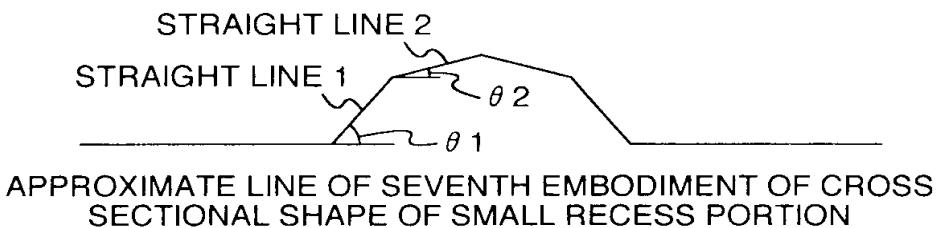


FIG.12C

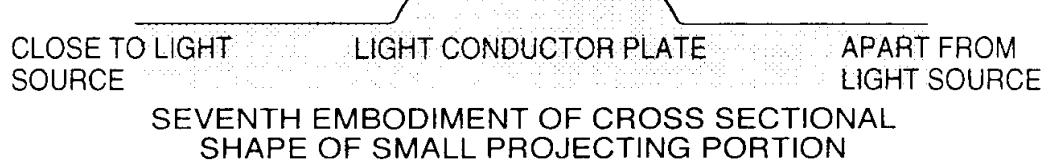


FIG.12D

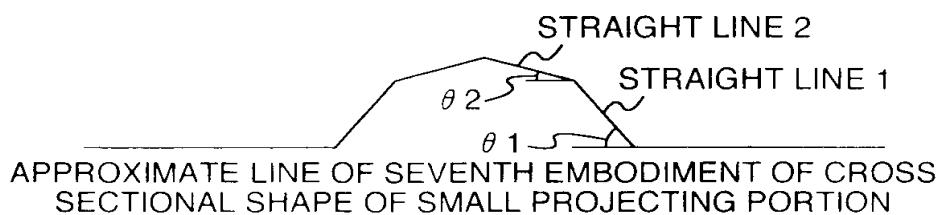


FIG.13A

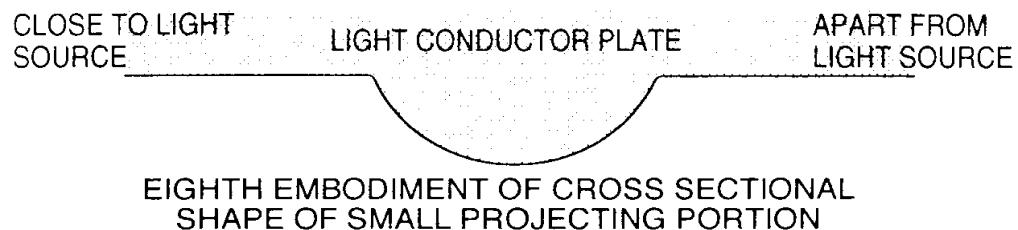


FIG.13B

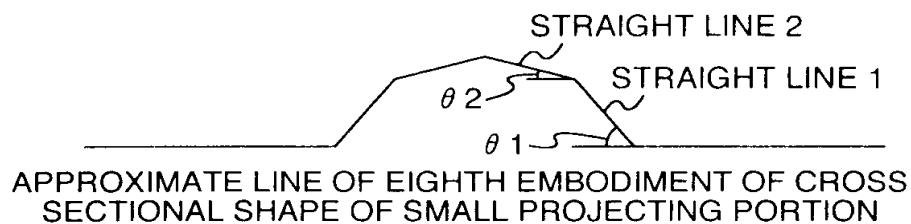


FIG.13C

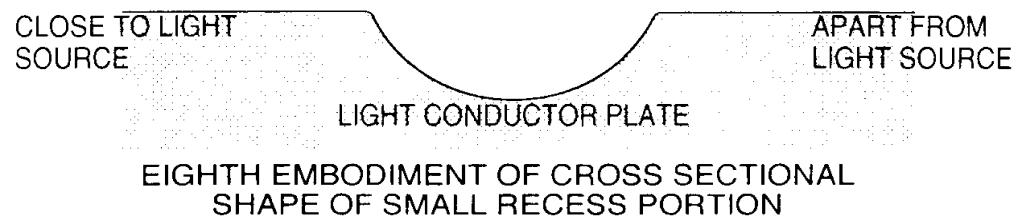
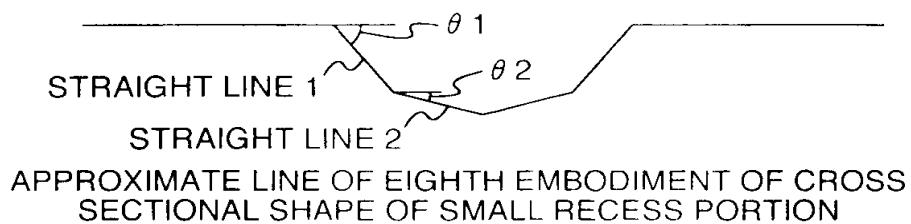


FIG.13D



09/463776

12 / 55

FIG.14A

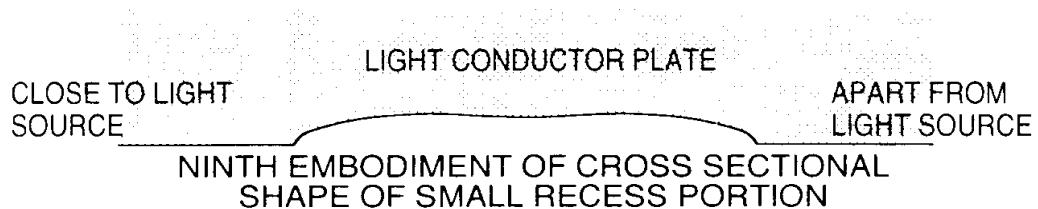


FIG.14B

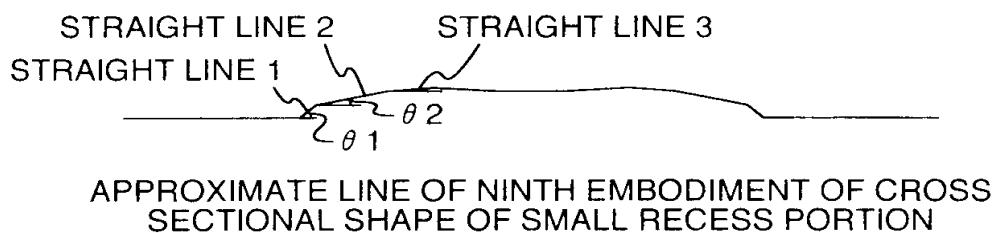


FIG.14C

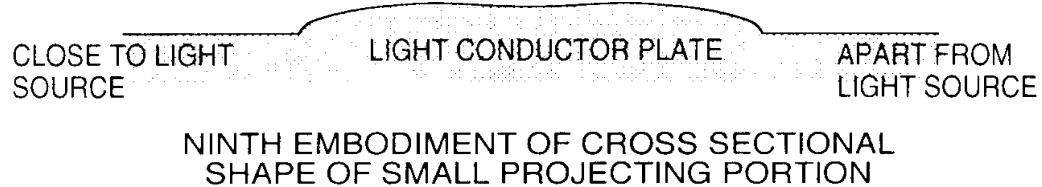


FIG.14D

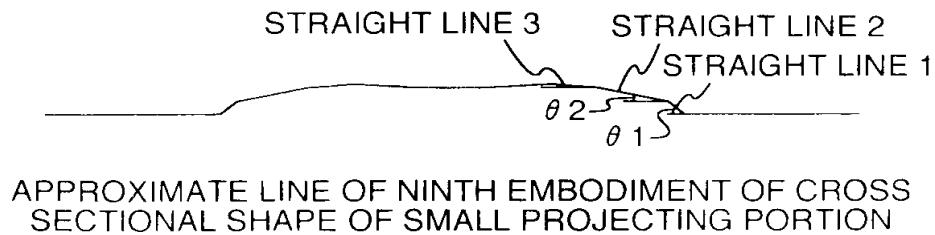


FIG.15A

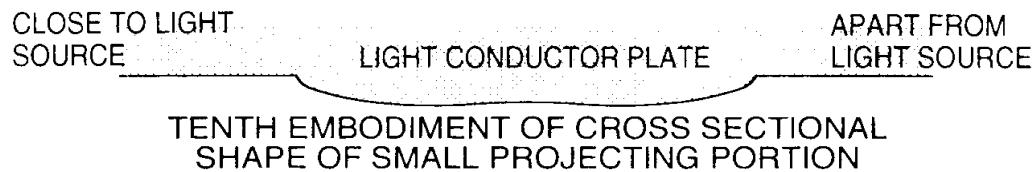
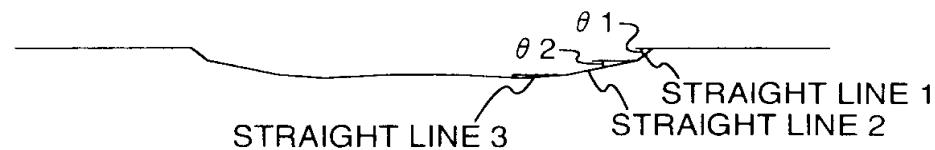


FIG.15B



APPROXIMATE LINE OF TENTH EMBODIMENT OF CROSS SECTIONAL SHAPE OF SMALL PROJECTING PORTION

FIG.15C

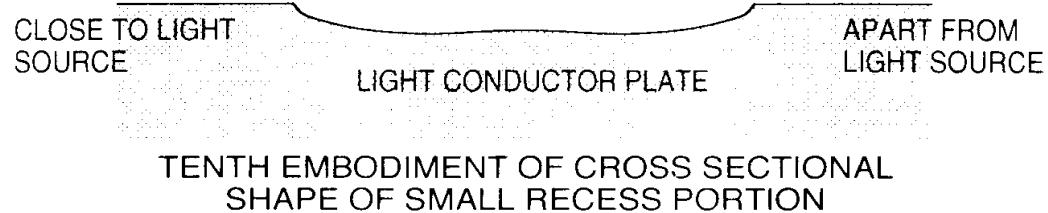
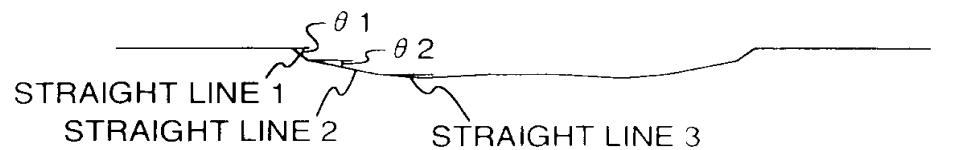


FIG.15D



APPROXIMATE LINE OF THIRD EMBODIMENT OF CROSS SECTIONAL SHAPE OF SMALL RECESS PORTION

FIG.16A

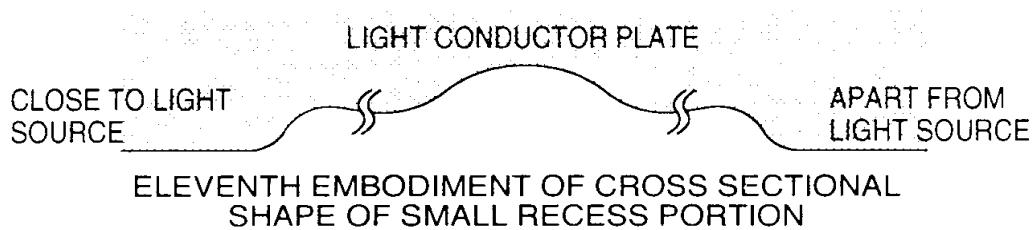
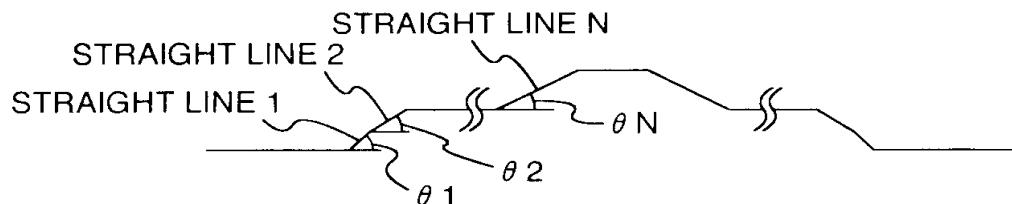


FIG.16B



APPROXIMATE LINE OF ELEVENTH EMBODIMENT OF CROSS SECTIONAL SHAPE OF SMALL RECESS PORTION

$$\text{ANGLE OF INCLINE IN CROSS SECTION} = \frac{\sum_{n=1}^N \theta_n \times L_n \times \sin(\theta_n + \theta)}{\sum_{n=1}^N L_n \times \sin(\theta_n + \theta)}$$

L_n = LENGTH OF STRAIGHT LINE n

θ = VALUE DETERMINED IN ACCORDANCE WITH REFRACTIVE INDEX OF LIGHT CONDUCTOR PLATE
ABOUT 18 DEGREES IS SUITABLE IN CASE OF REFRACTIVE INDEX OF LIGHT CONDUCTOR PLATE = 1.47 ± 0.1

$$\text{ANGLE OF INCLINE IN CROSS SECTION} = \frac{\theta_1 \times L_1 \times \sin(\theta_1 + \theta) + \theta_2 \times L_2 \times \sin(\theta_2 + \theta)}{L_1 \times \sin(\theta_1 + \theta) + L_2 \times \sin(\theta_2 + \theta)}$$

L_1 = LENGTH OF STRAIGHT LINE 1

L_2 = LENGTH OF STRAIGHT LINE 2

θ = VALUE DETERMINED IN ACCORDANCE WITH REFRACTIVE INDEX OF LIGHT CONDUCTOR PLATE
ABOUT 18 DEGREES IS SUITABLE IN CASE OF REFRACTIVE INDEX OF LIGHT CONDUCTOR PLATE = 1.47 ± 0.1

FIG.17A



FIG.17B

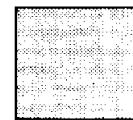


FIG.17C



FIG.17D



FIG.17E

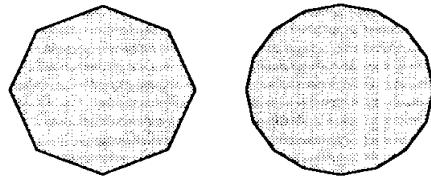


FIG.17F

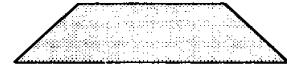


FIG.17G

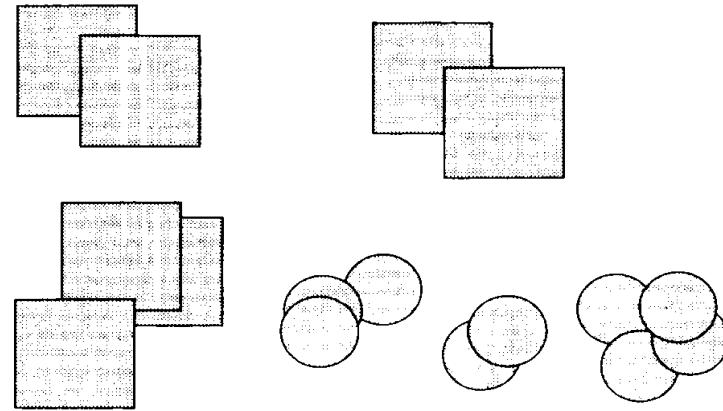


FIG.18

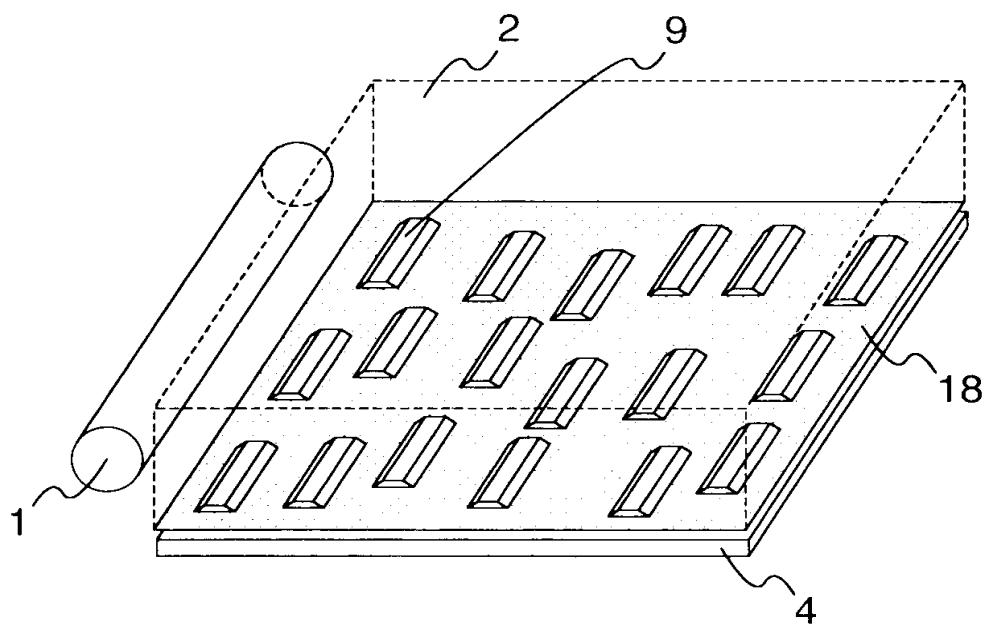


FIG.19

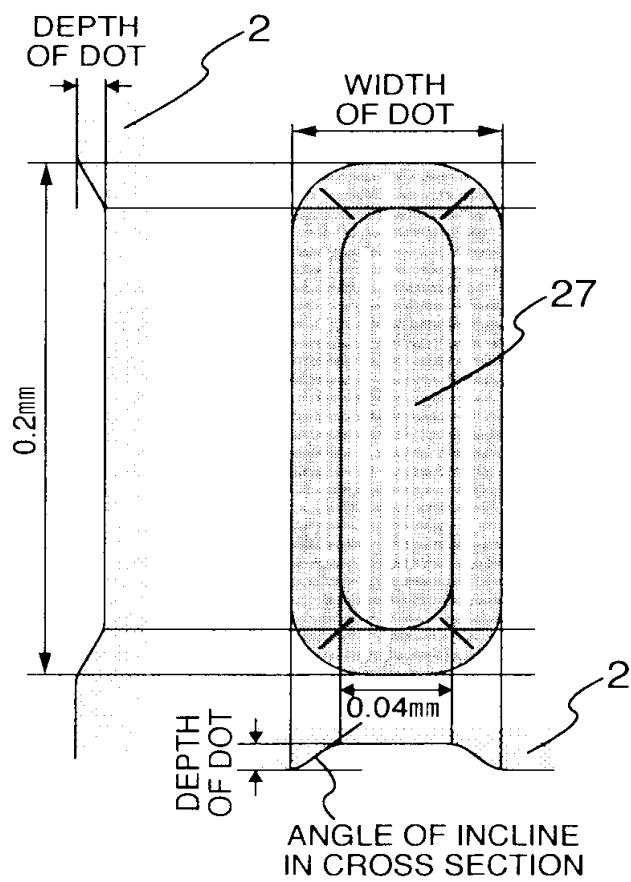


FIG.20

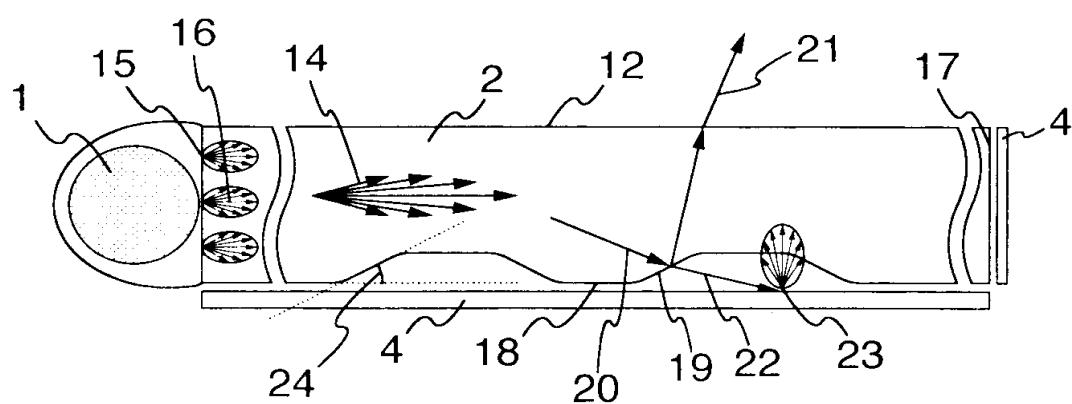


FIG.21A

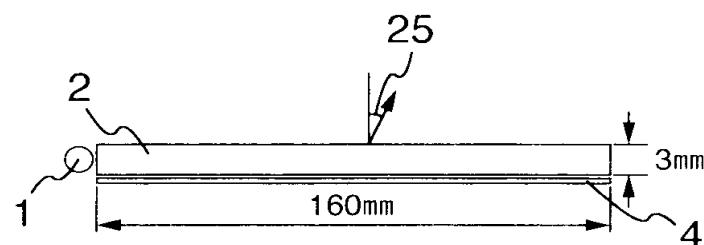
EMBODIMENT 1-1
CROSS SECTIONAL SHAPE OF
LIGHT CONDUCTOR PLATE

FIG.21B

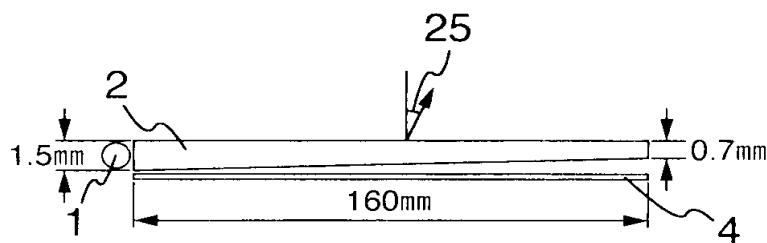
EMBODIMENT 1-2
CROSS SECTIONAL SHAPE OF
LIGHT CONDUCTOR PLATE

FIG.21C

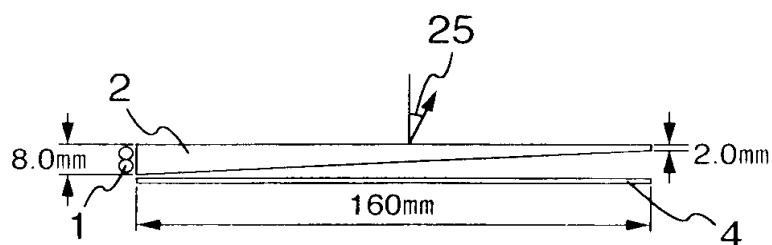
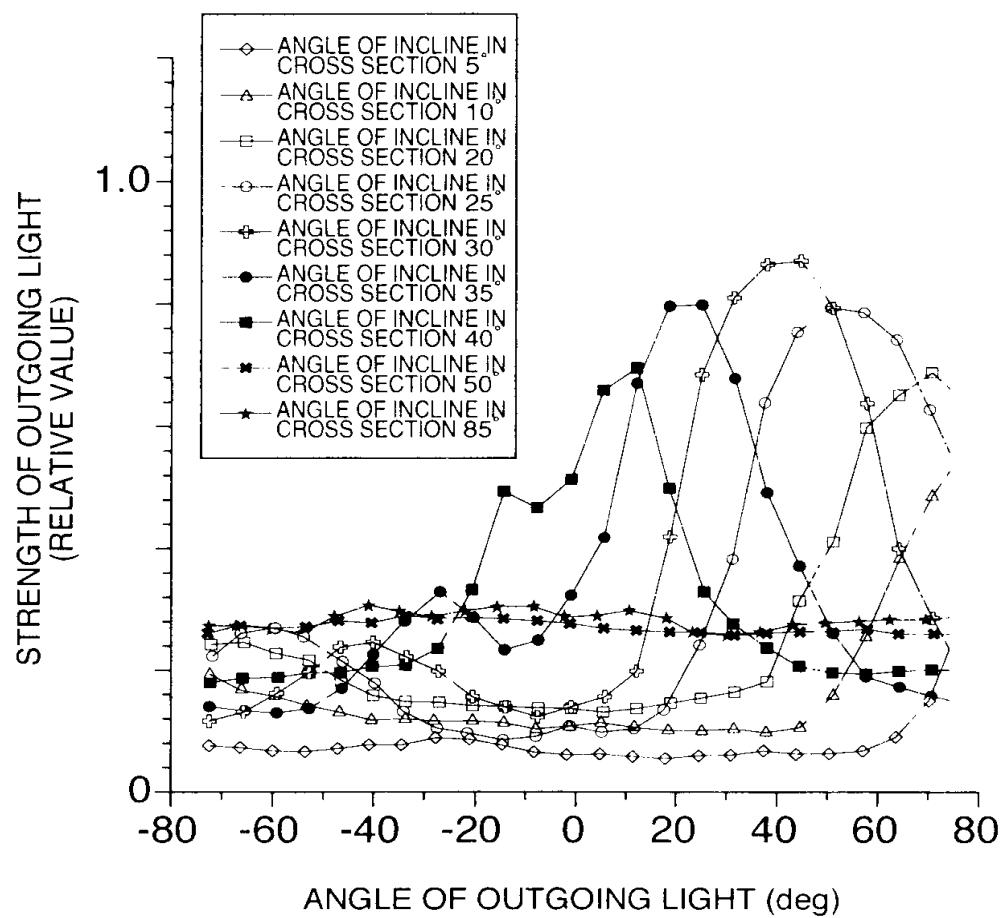
EMBODIMENT 1-3
CROSS SECTIONAL SHAPE OF
LIGHT CONDUCTOR PLATE

FIG.22



09/463776

21 / 55

FIG.23

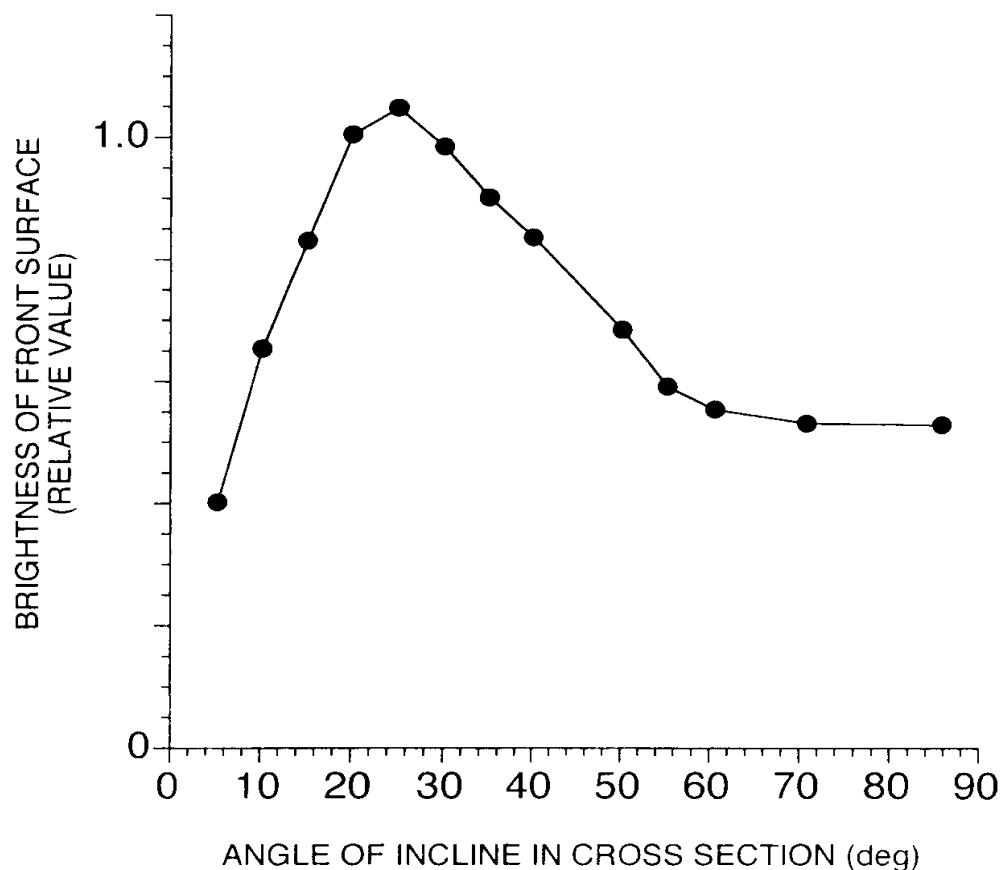
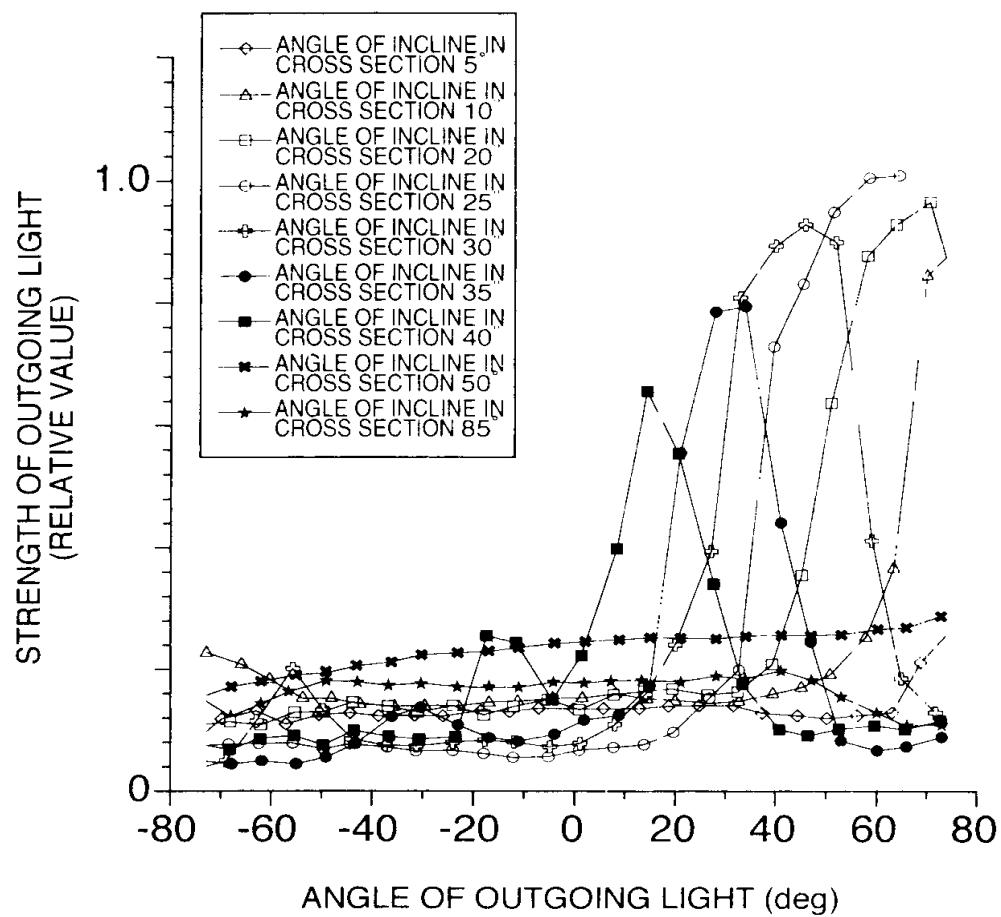


FIG.24



03/483775

23 / 55

FIG.25

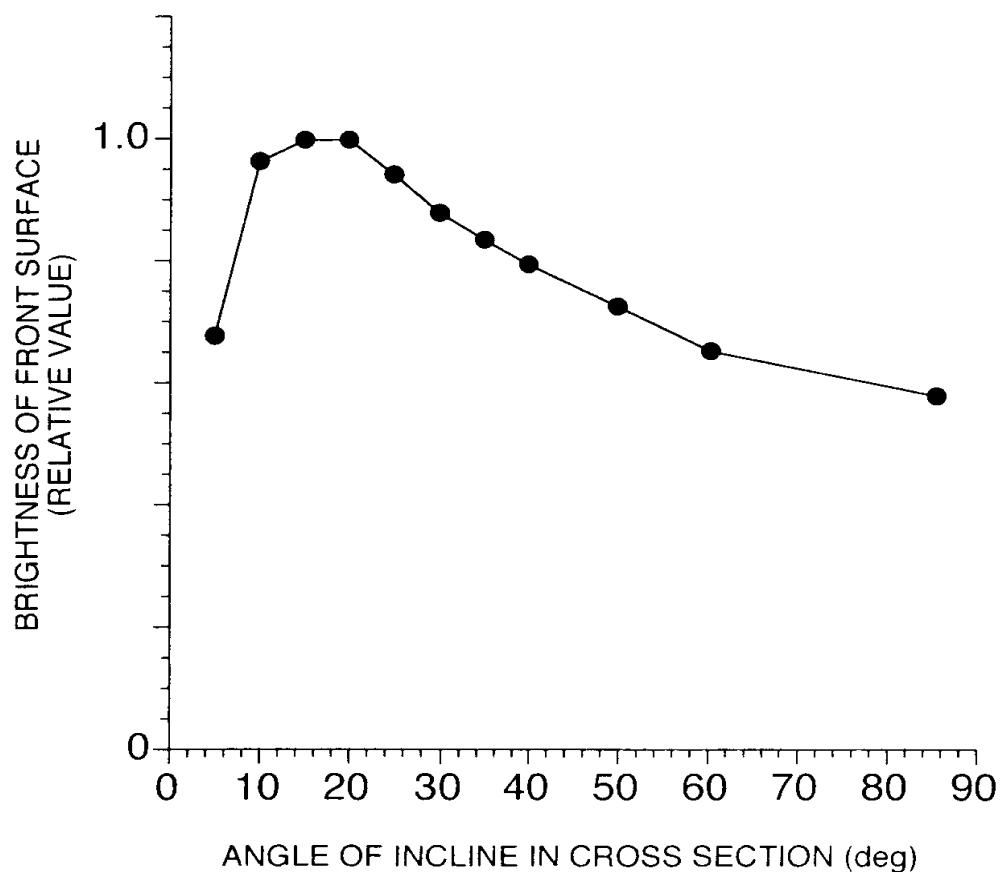
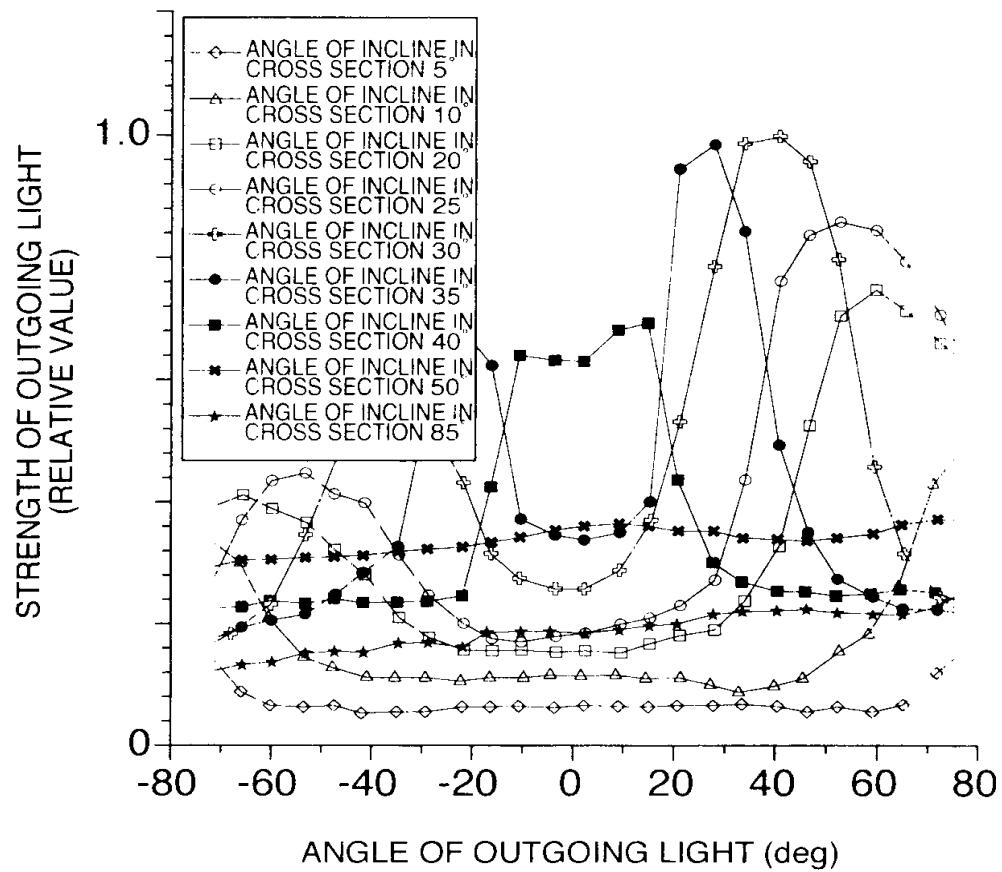


FIG.26



09/463776

25 / 55

FIG.27

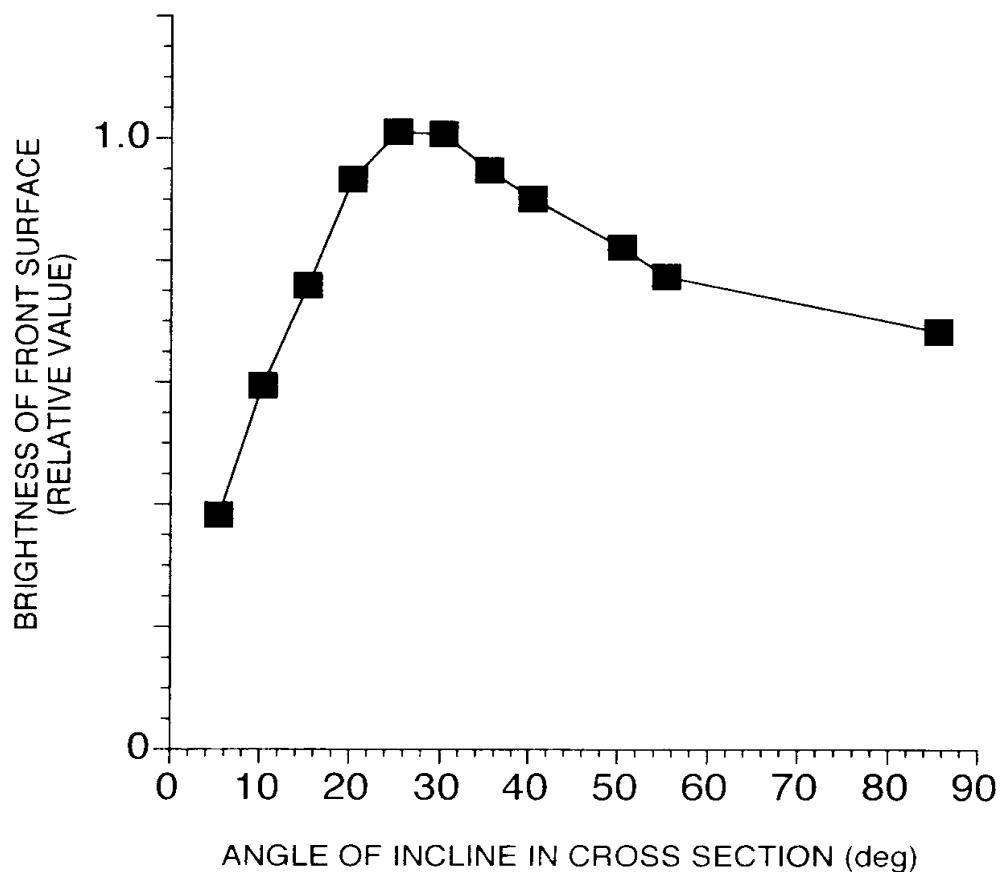


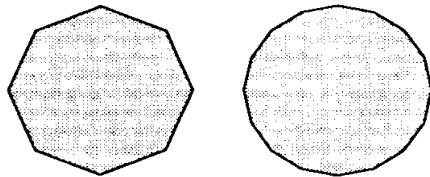
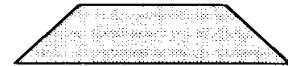
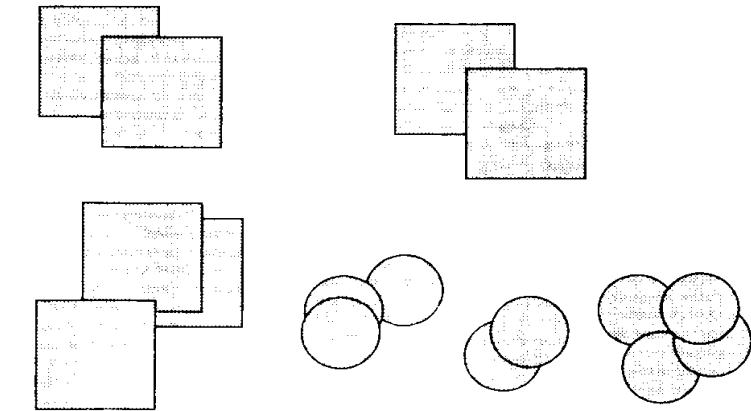
FIG.28A**FIG.28B****FIG.28C****FIG.28D****FIG.28E****FIG.28F****FIG.28G**

FIG.29A

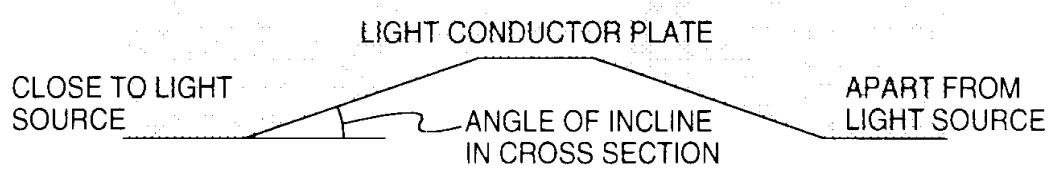


FIG.29B

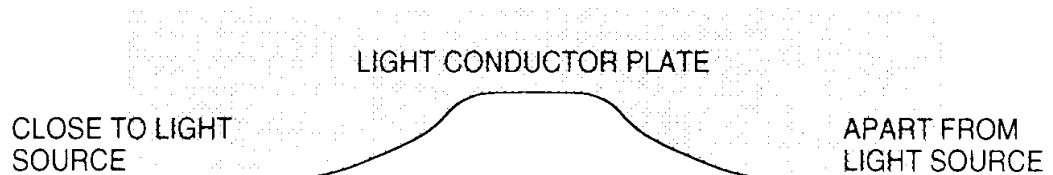
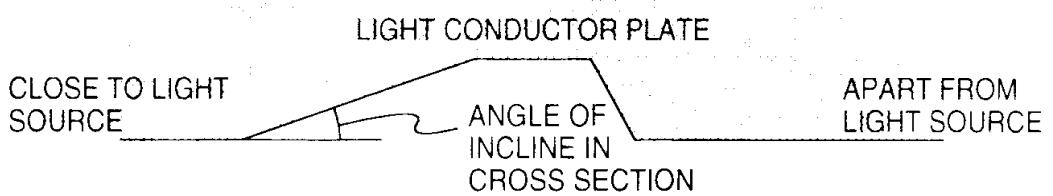


FIG.29C



09/463775

28 / 55

FIG.30

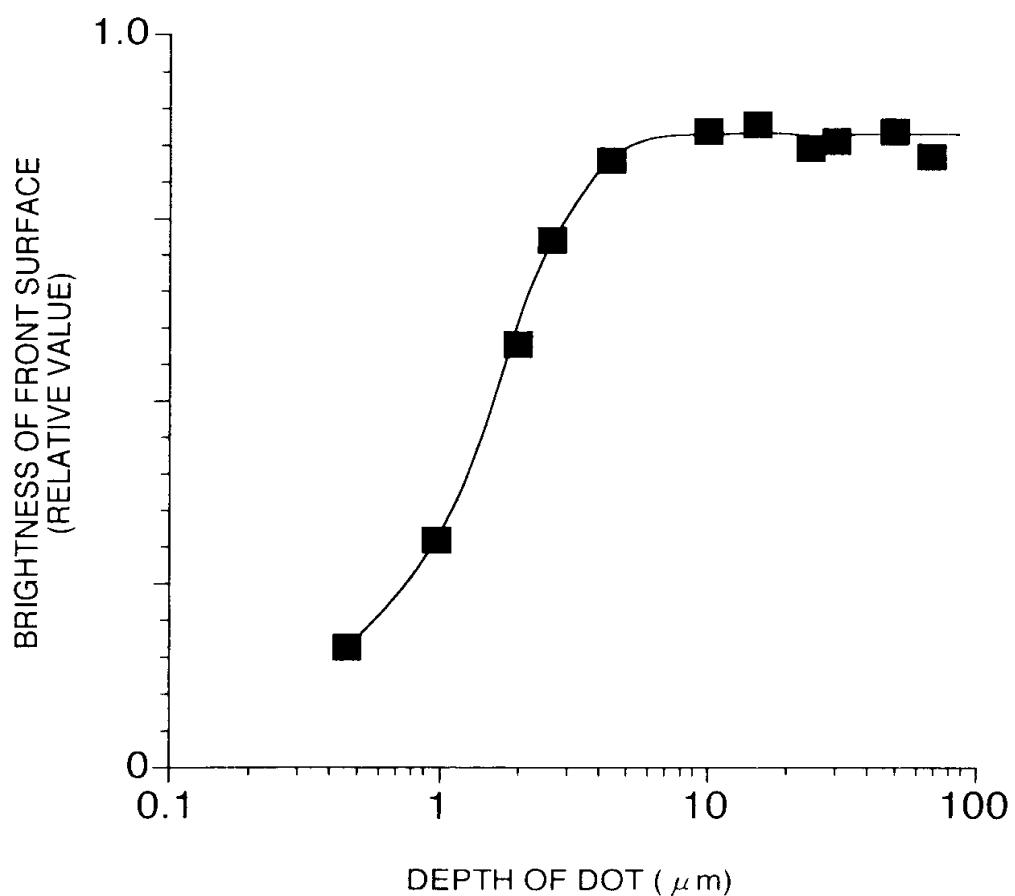
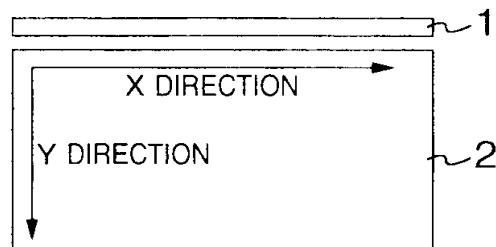


FIG.31

SHAPE	MEMBER	SIZE(X DIRECTION μm)						
		10	20	50	100	200	400	800
CIRCULAR SHAPE, SQUARE	NONE	○	○	○	△	✗	✗	✗
	DIFFUSION PLATE	○	○	○	○	△	✗	✗
	DIFFUSION PLATE + ONE LIGHT CONDUCTOR PLATE	○	○	○	○	○	△	✗
	DIFFUSION PLATE + TWO LIGHT CONDUCTOR PLATES	○	○	○	○	○	○	△
SUBSTANTIALLY RECTANGULAY SHAPE (20 μm IN Y DIRECTION)	NONE	—	○	○	○	△	✗	✗
	DIFFUSION PLATE	—	○	○	○	○	△	✗
	DIFFUSION PLATE + ONE LIGHT CONDUCTOR PLATE	—	○	○	○	○	○	△
	DIFFUSION PLATE + TWO LIGHT CONDUCTOR PLATES	—	○	○	○	○	○	△
SUBSTANTIALLY RECTANGULAY SHAPE (50 μm IN Y DIRECTION)	NONE	—	○	○	○	△	✗	✗
	DIFFUSION PLATE	—	○	○	○	△	△	✗
	DIFFUSION PLATE + ONE LIGHT CONDUCTOR PLATE	—	○	○	○	○	△	✗
	DIFFUSION PLATE + TWO LIGHT CONDUCTOR PLATES	—	○	○	○	○	○	△
SUBSTANTIALLY RECTANGULAY SHAPE (100 μm IN Y DIRECTION)	NONE	—	○	○	△	✗	✗	✗
	DIFFUSION PLATE	—	○	○	○	△	✗	✗
	DIFFUSION PLATE + ONE LIGHT CONDUCTOR PLATE	—	○	○	○	○	△	✗
	DIFFUSION PLATE + TWO LIGHT CONDUCTOR PLATES	—	○	○	○	○	○	△
SUBSTANTIALLY RECTANGULAY SHAPE (200 μm IN Y DIRECTION)	NONE	—	○	△	✗	✗	✗	✗
	DIFFUSION PLATE	—	○	○	○	△	✗	✗
	DIFFUSION PLATE + ONE LIGHT CONDUCTOR PLATE	—	○	○	○	○	△	✗
	DIFFUSION PLATE + TWO LIGHT CONDUCTOR PLATES	—	○	○	○	○	○	△
SUBSTANTIALLY RECTANGULAY SHAPE (400 μm IN Y DIRECTION)	NONE	—	○	△	✗	✗	✗	✗
	DIFFUSION PLATE	—	○	○	○	△	✗	✗
	DIFFUSION PLATE + ONE LIGHT CONDUCTOR PLATE	—	○	○	○	○	△	✗
	DIFFUSION PLATE + TWO LIGHT CONDUCTOR PLATES	—	○	○	○	○	○	△



○

DOT VISIBILITY NONE

△

SOMETIMES DOT VISIBILITY EXISTS

✗

DOT VISIBILITY EXISTS

FIG.32A

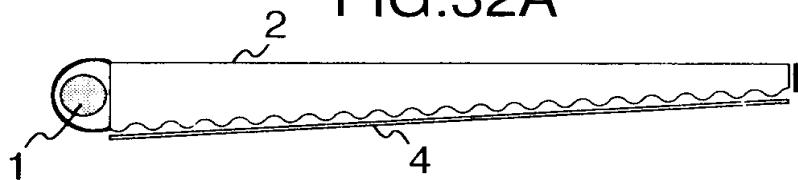


FIG.32B

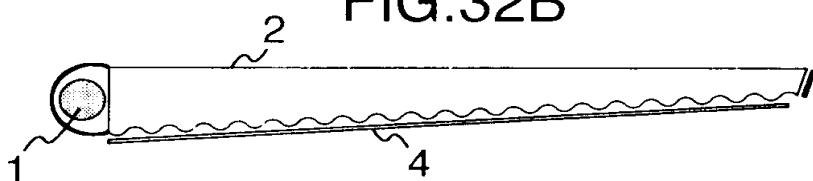


FIG.32C

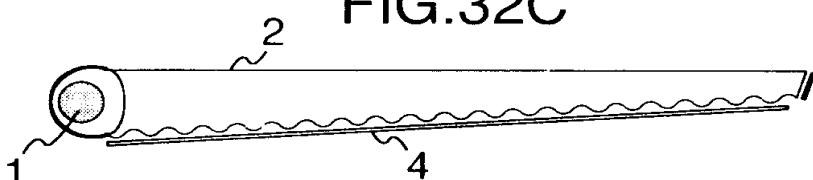


FIG.32D

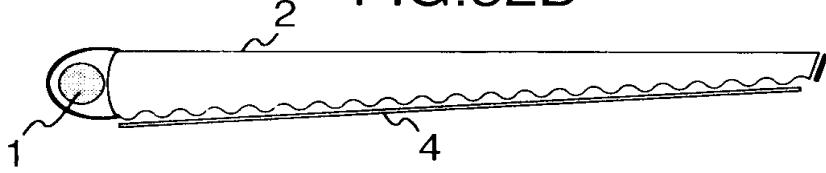


FIG.32E

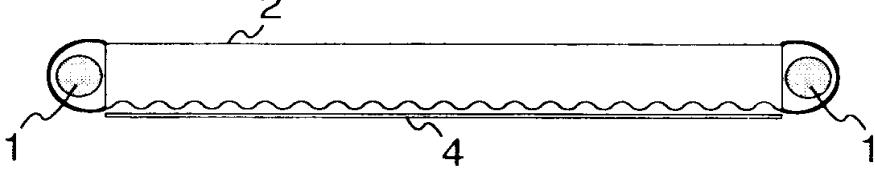


FIG.32F

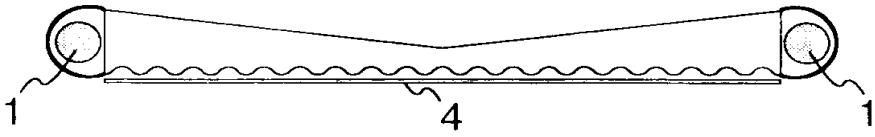


FIG.33

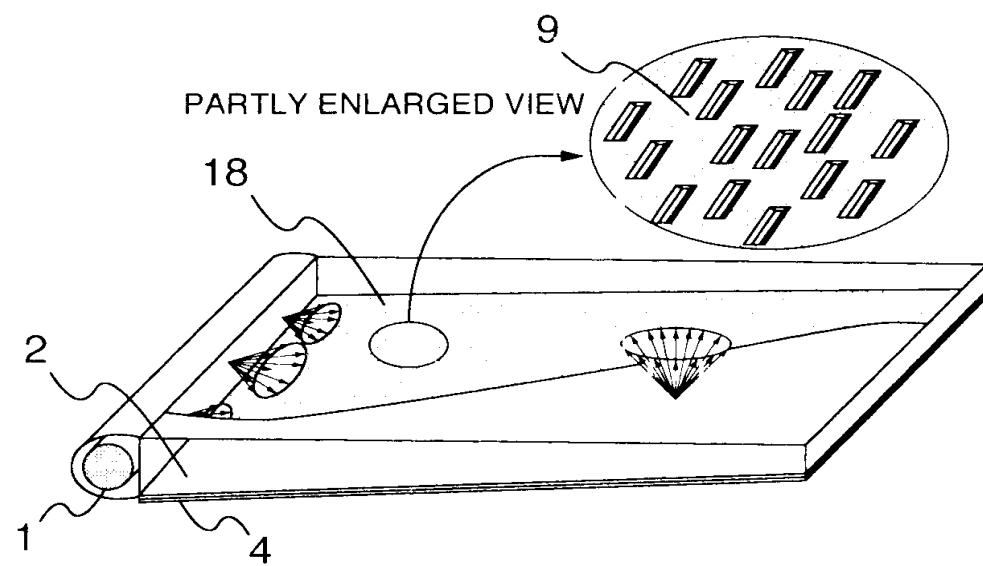


FIG.34

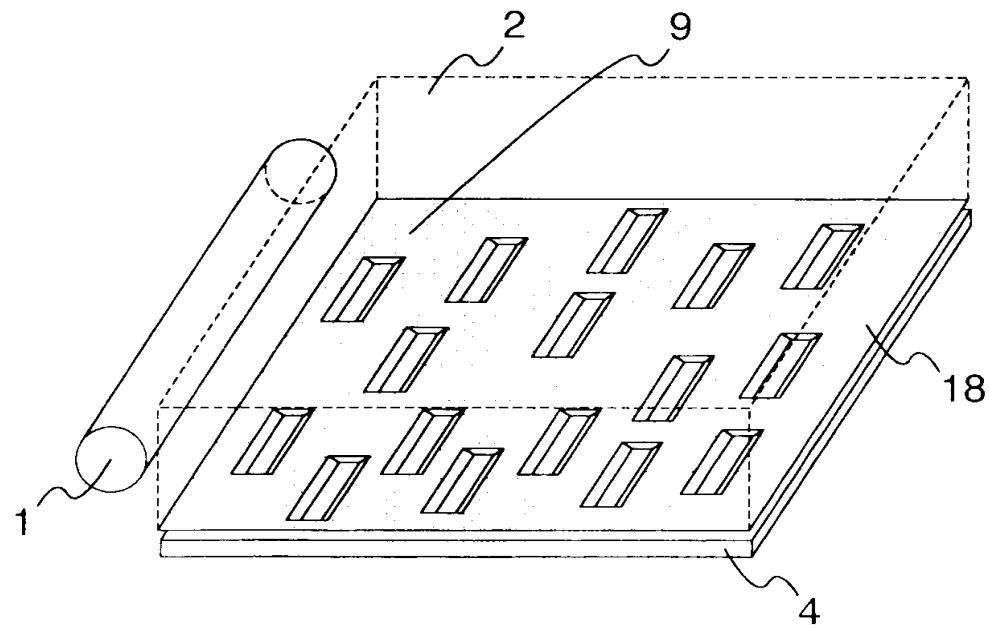


FIG.35

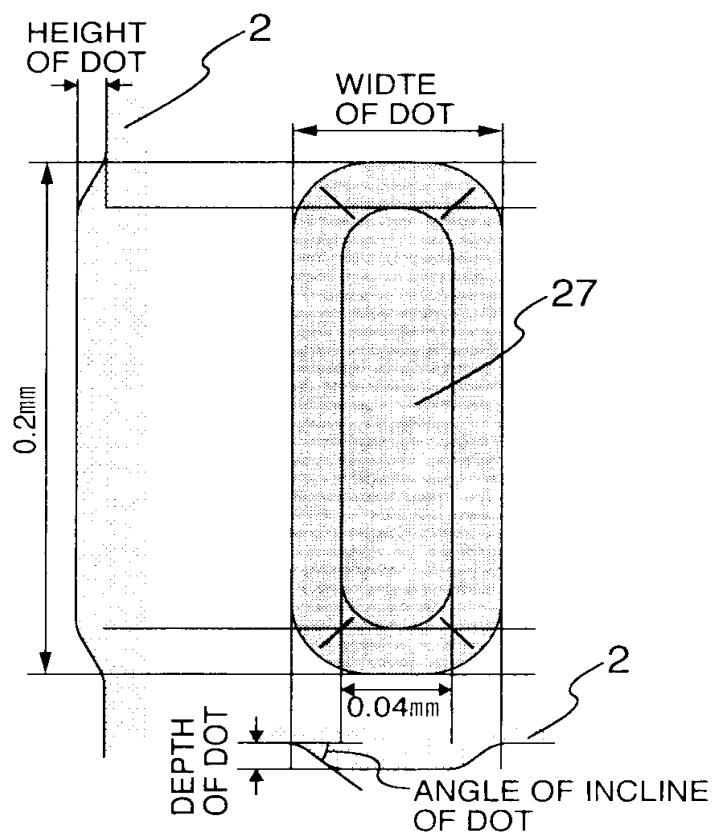
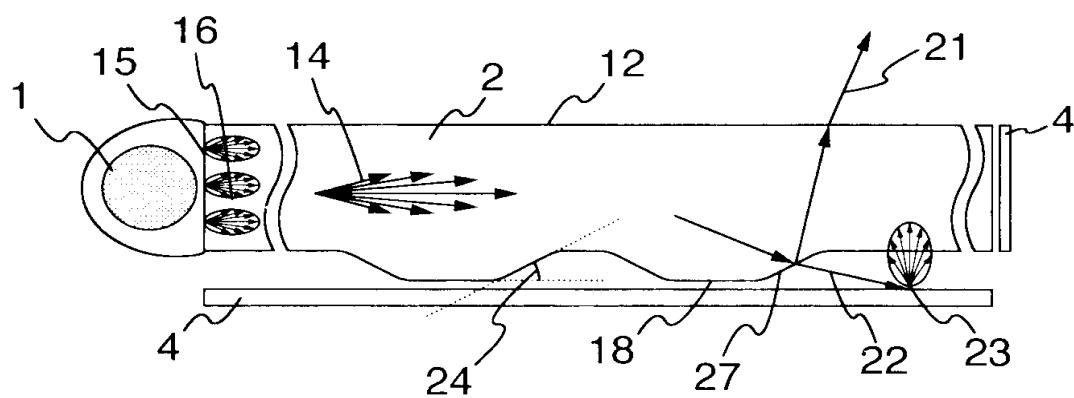


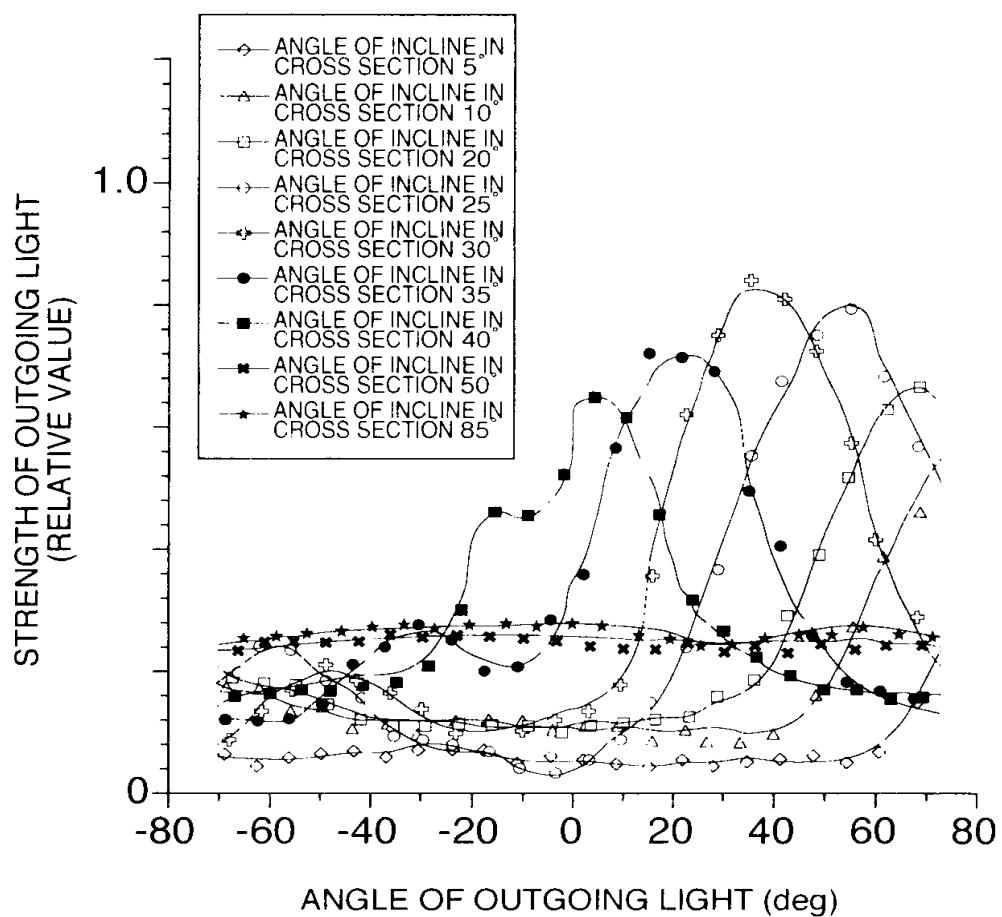
FIG.36



09/463773

34 / 55

FIG.37



09.14.2023

FIG.38

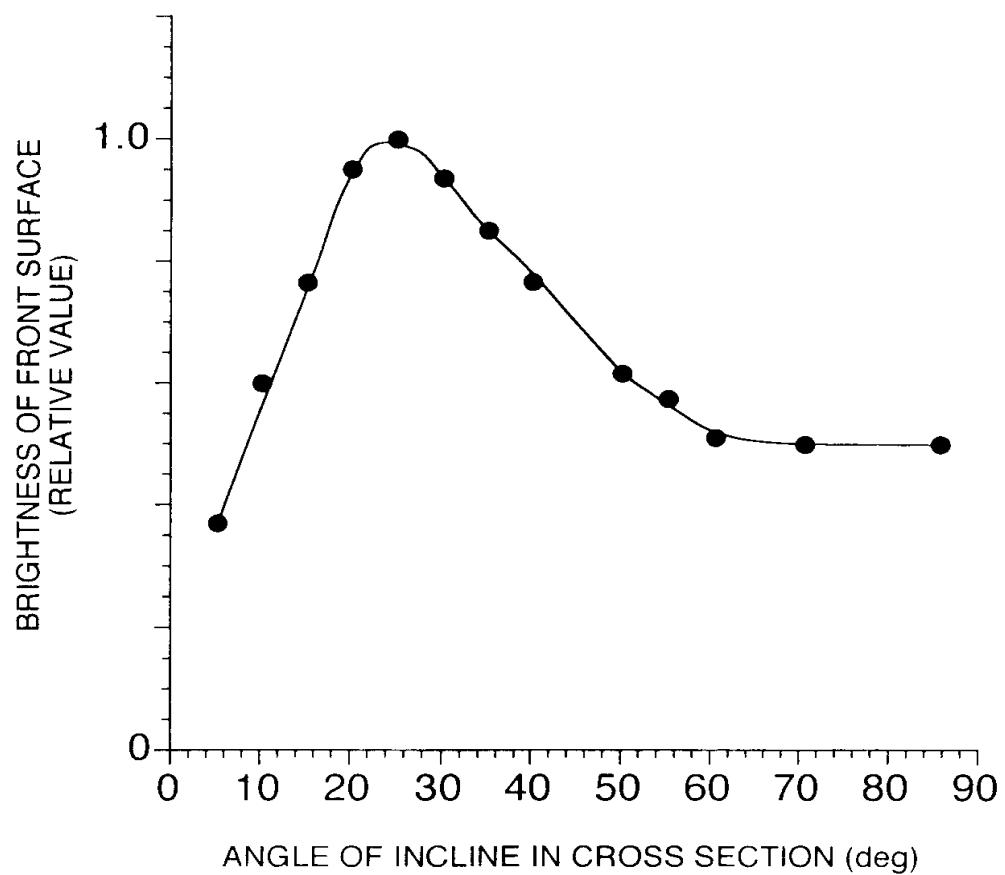


FIG.39A

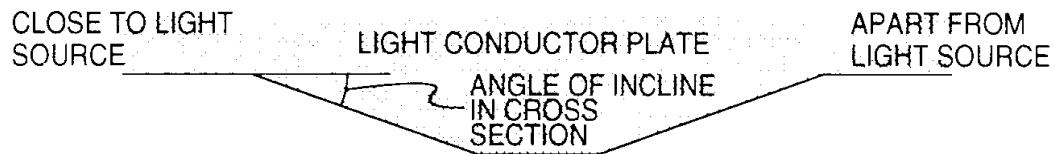


FIG.39B

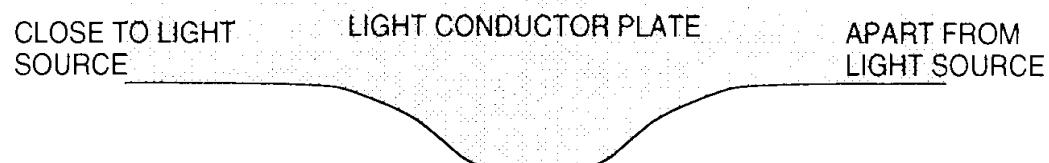


FIG.39C

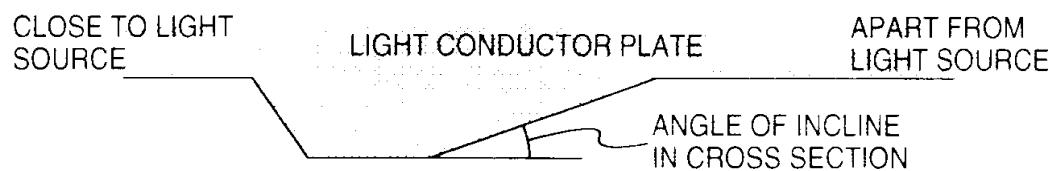


FIG.40

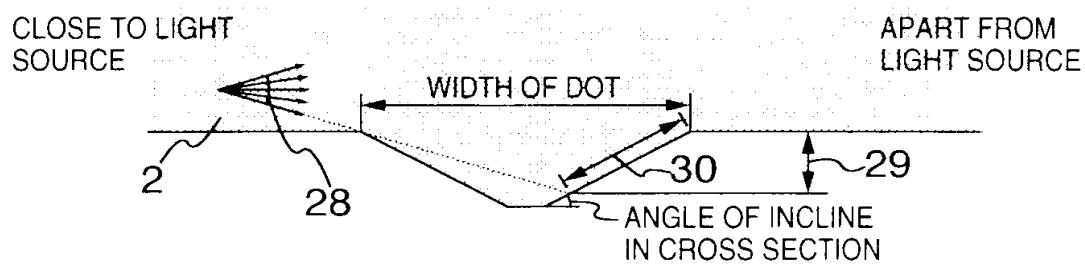


FIG.41

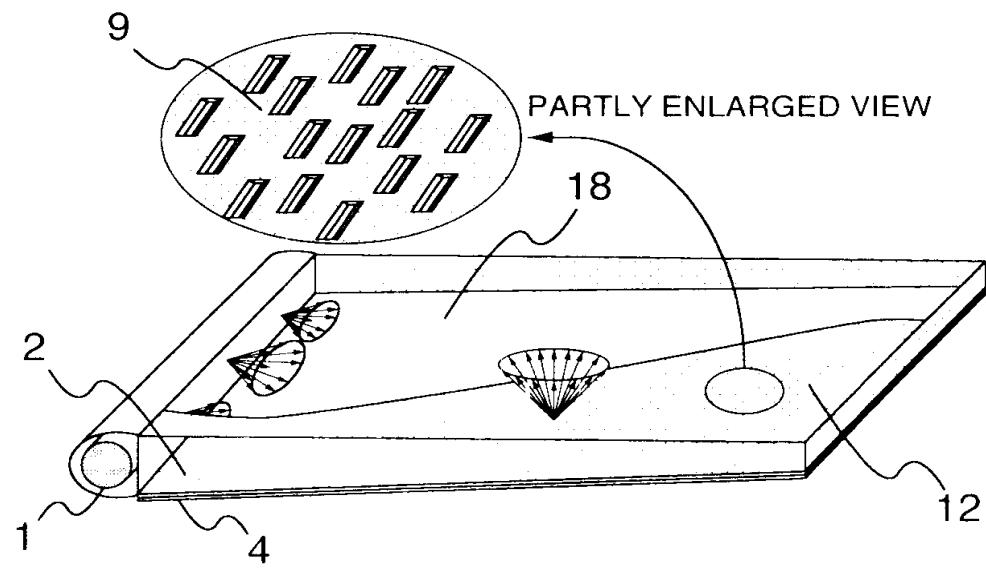


FIG.42

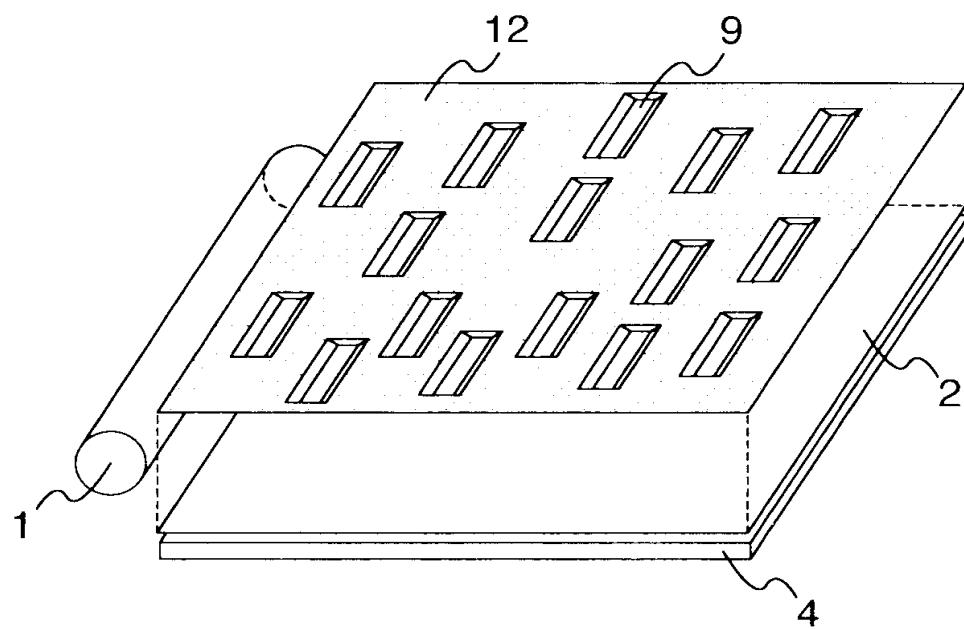


FIG.43

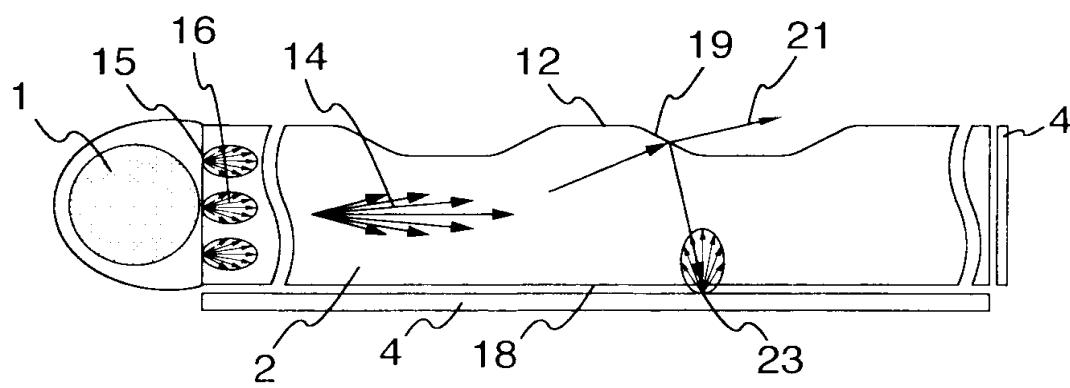


FIG.44

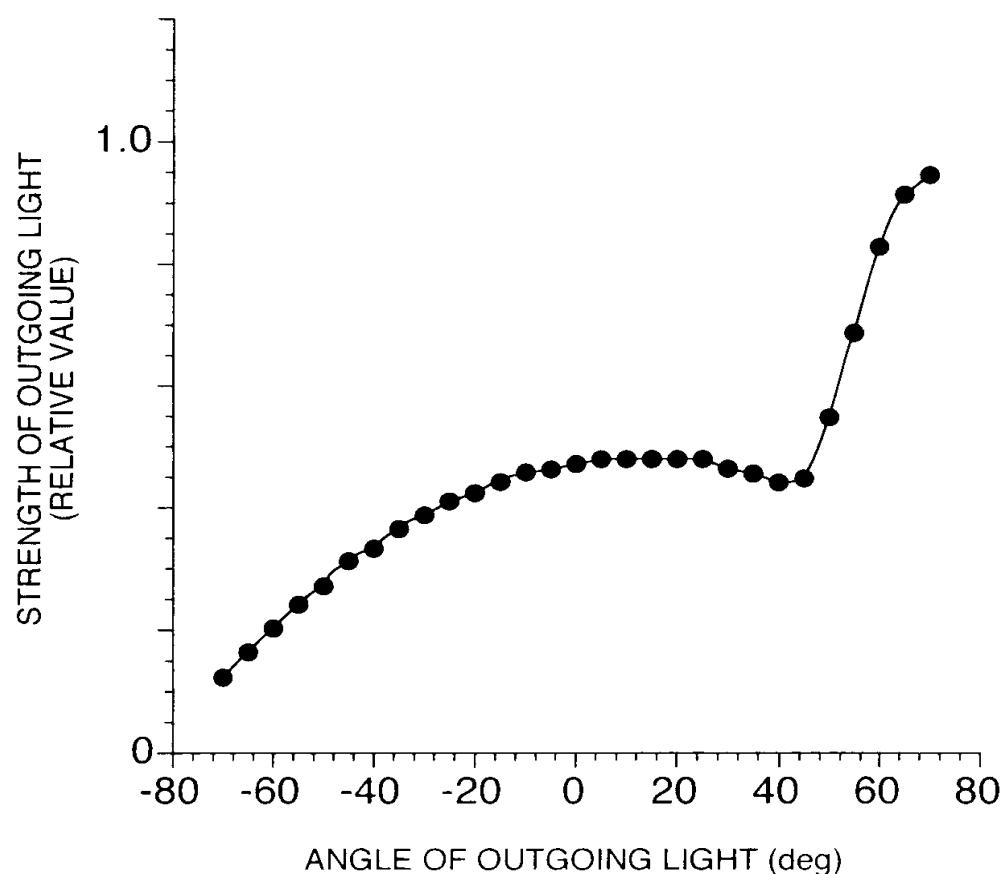


FIG.45

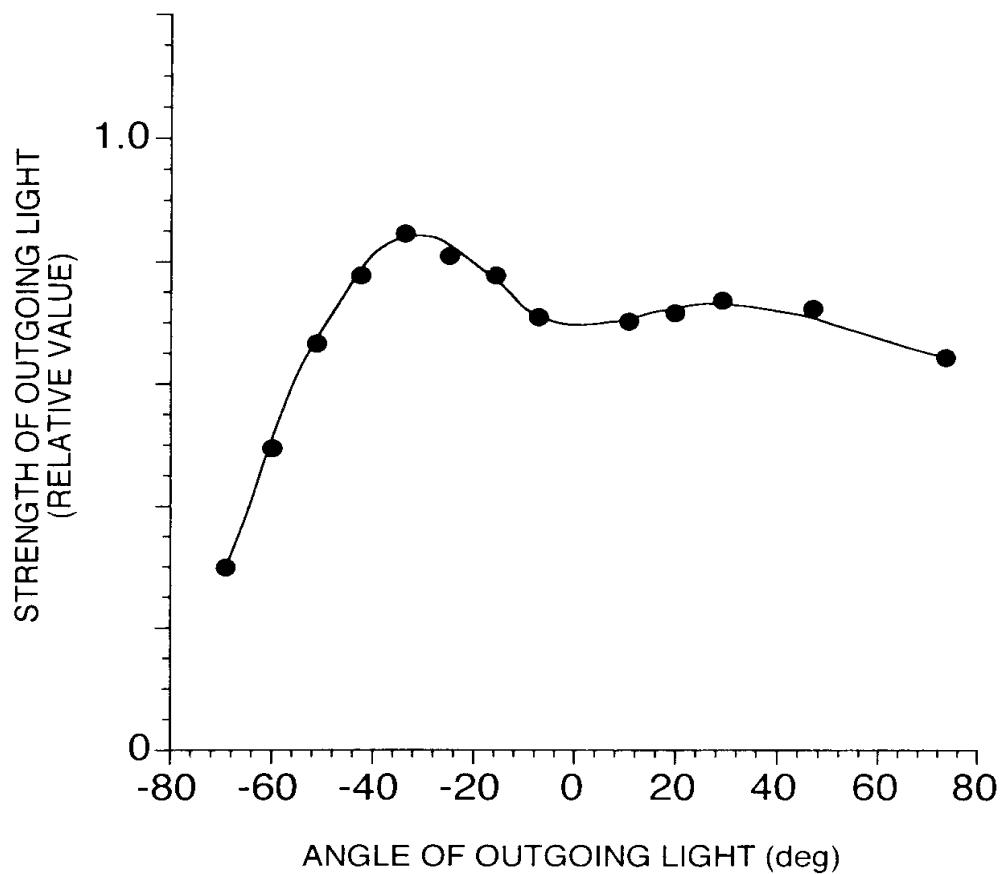


FIG.46

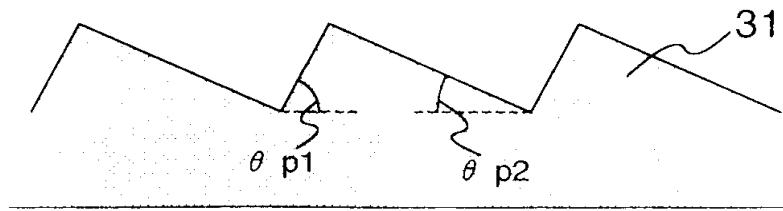


FIG.47A

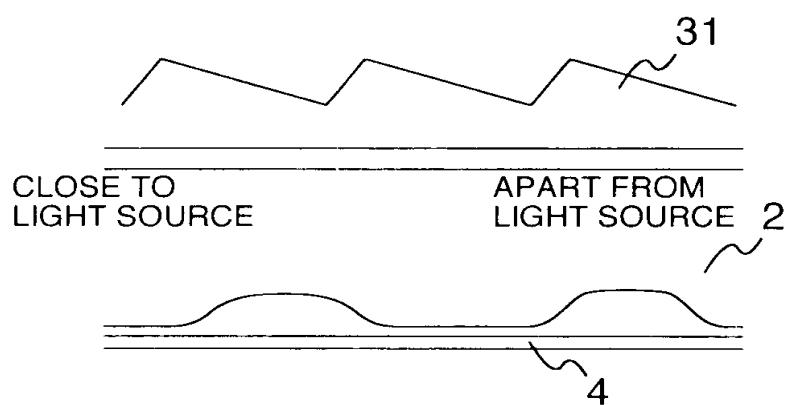


FIG.47B

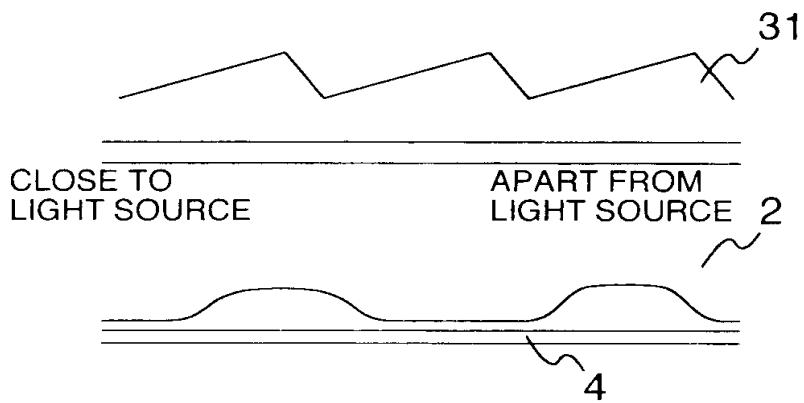
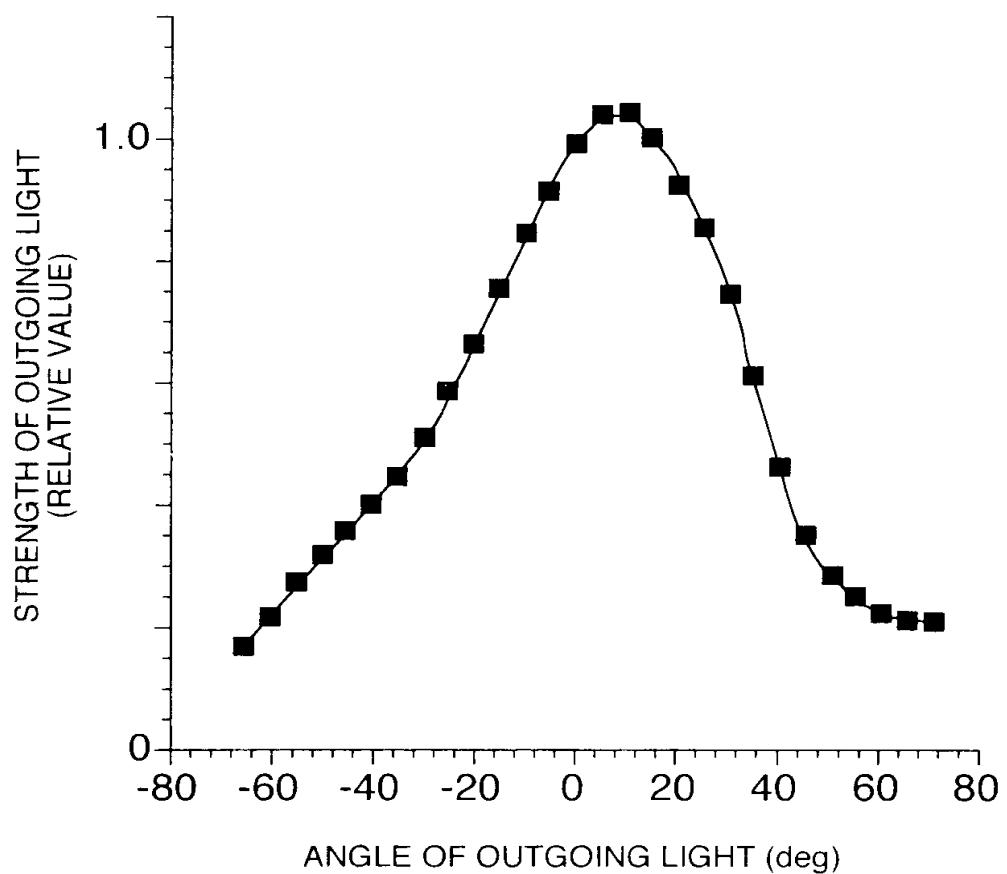


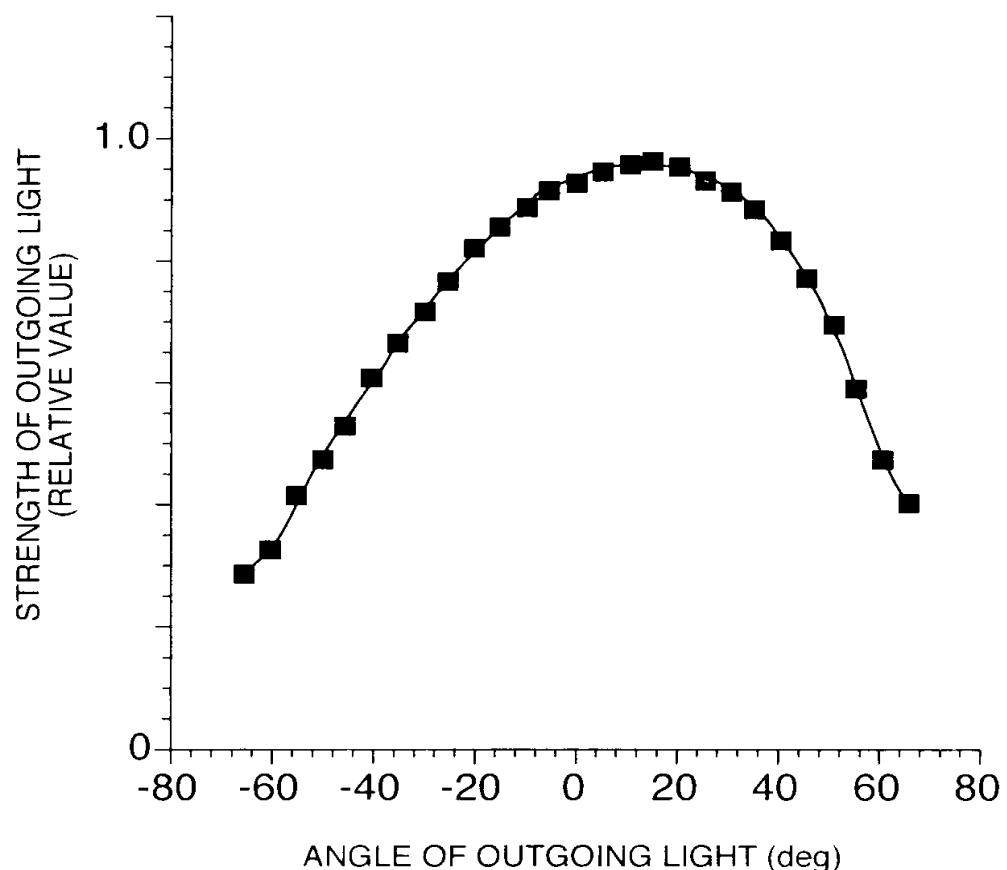
FIG.48



09/463776

43 / 55

FIG.49



09/483776

44 / 55

FIG.50



PHOTOGRAPHED
FROM ABOVE



PHOTOGRAPHED
FROM LEFT



PHOTOGRAPHED
FROM FRONT



PHOTOGRAPHED
FROM RIGHT



PHOTOGRAPHED
FROM BELOW

FIG.51

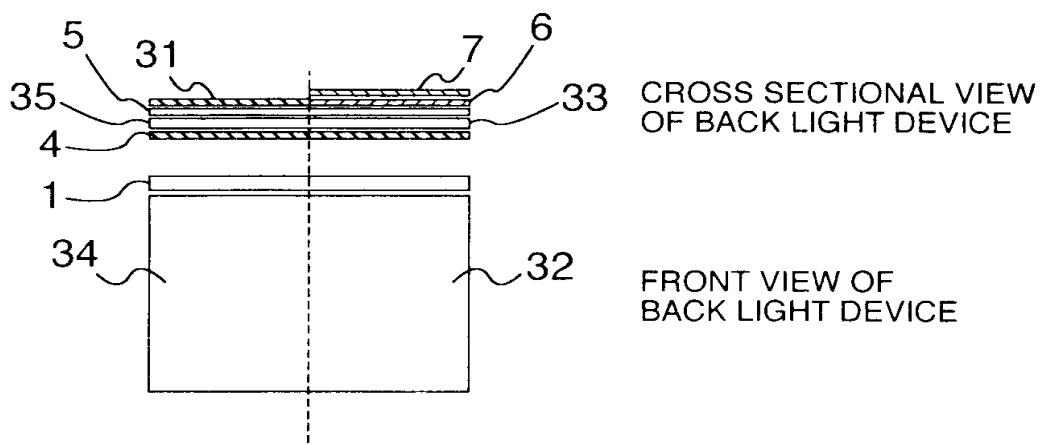


FIG.52

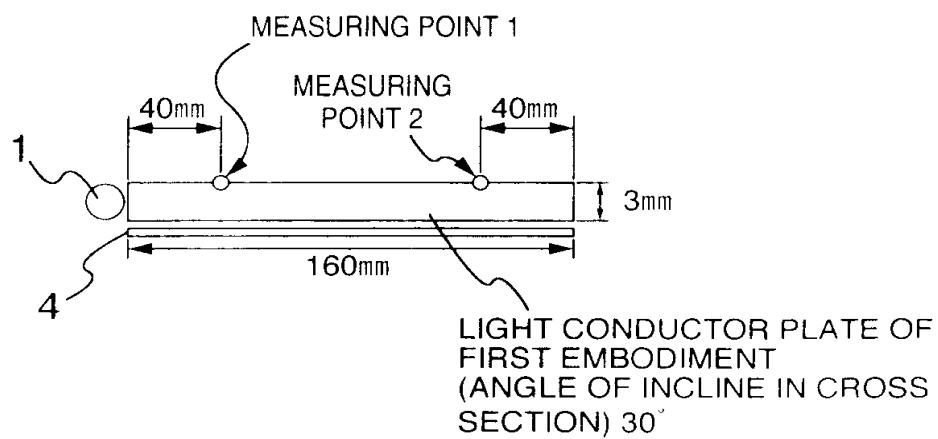
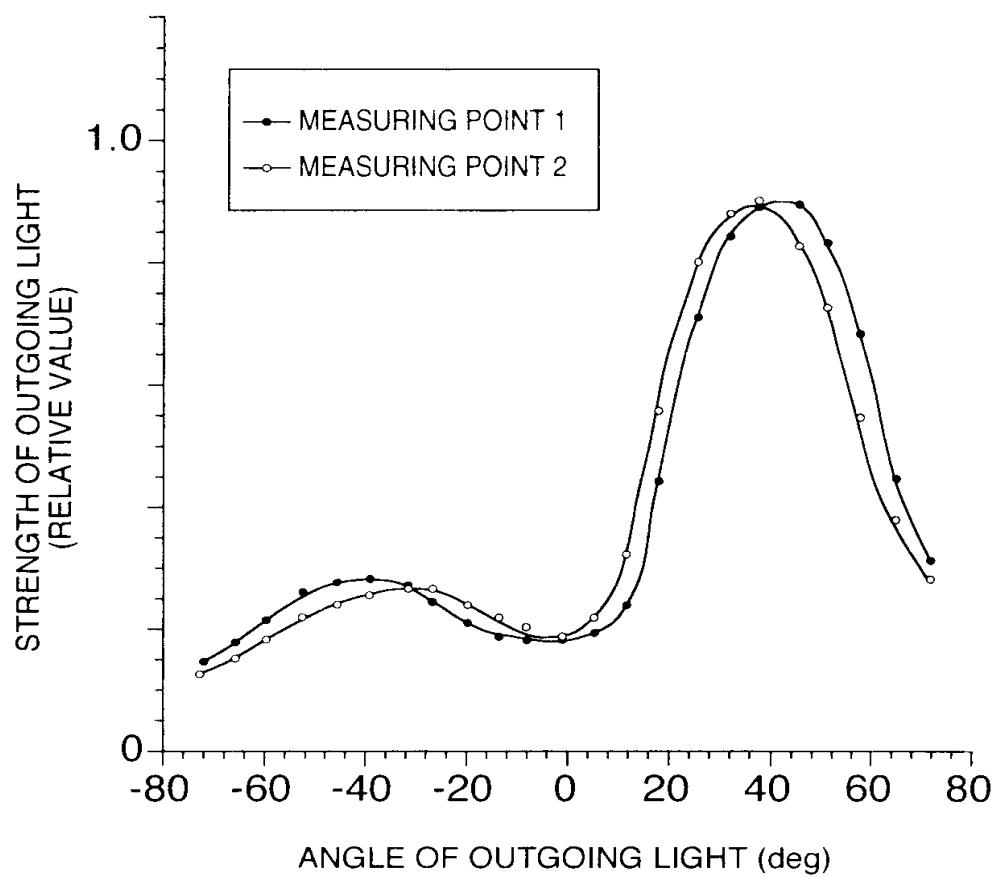


FIG.53

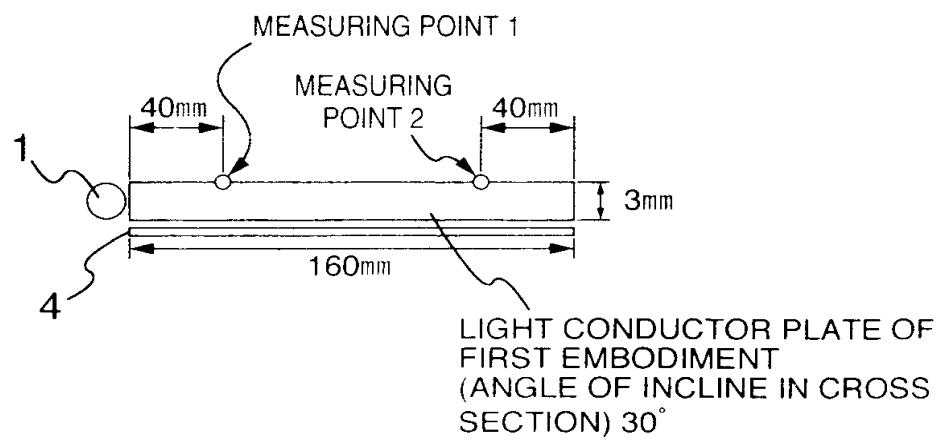
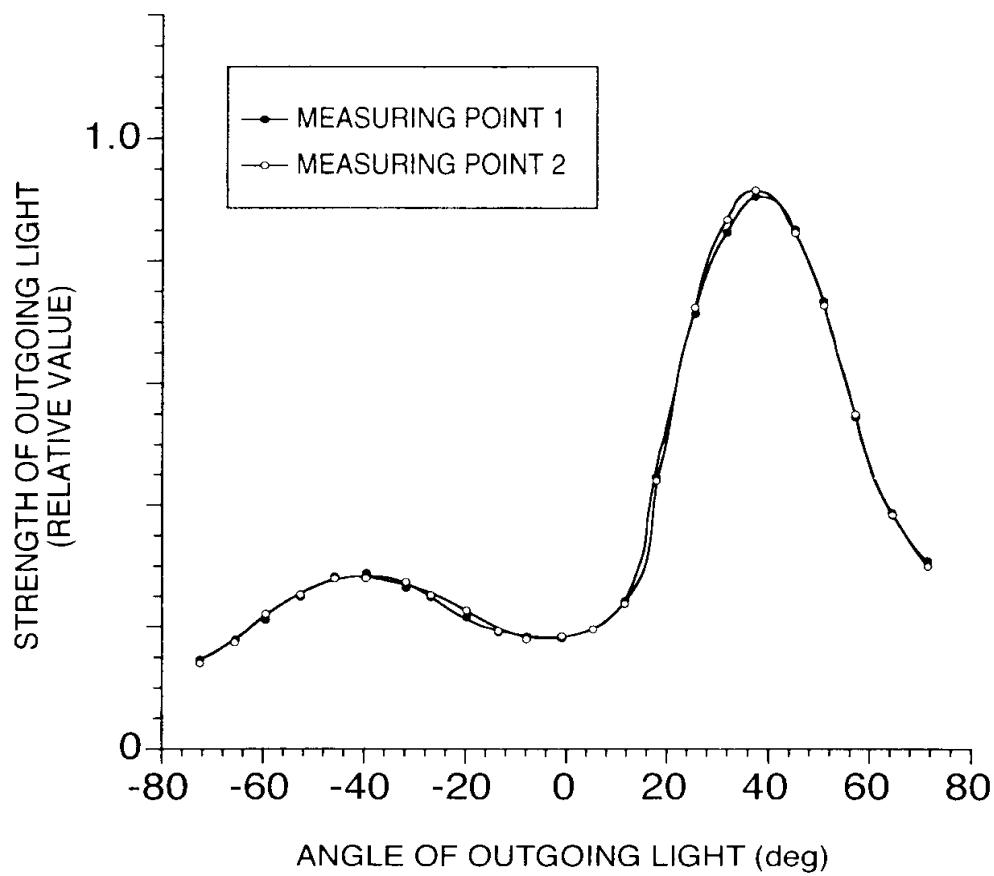
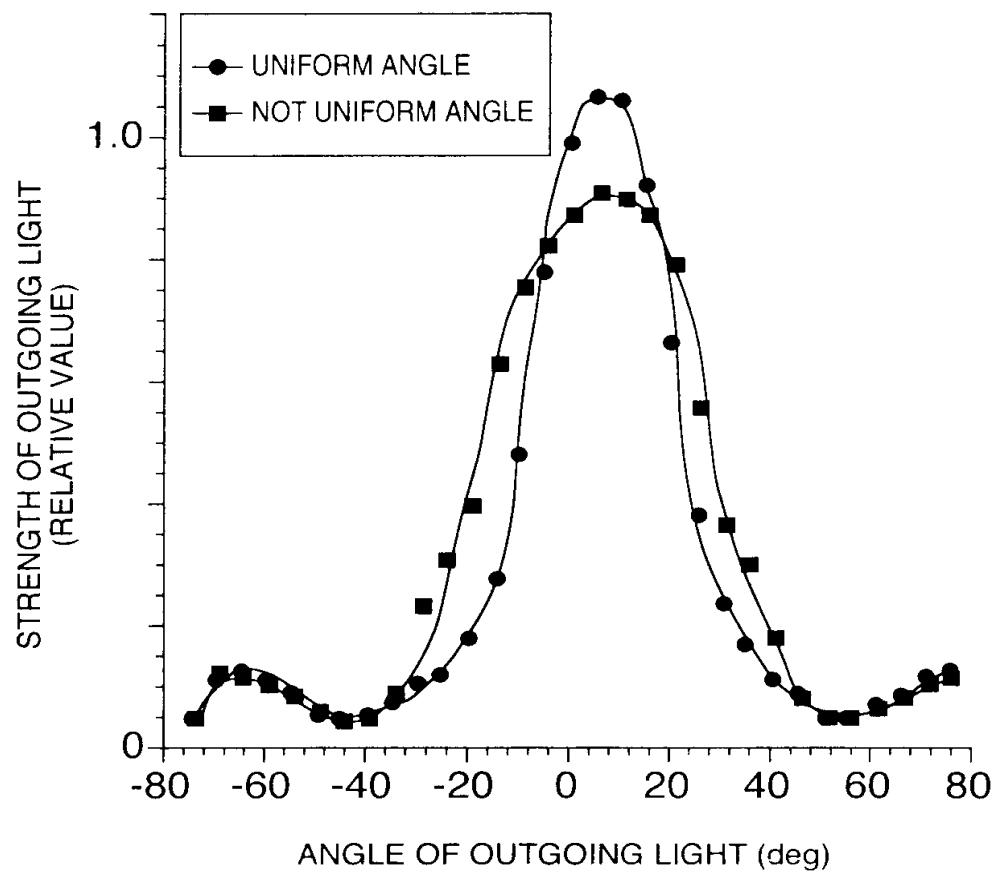


FIG.54



09/463776

49 / 55

FIG.55

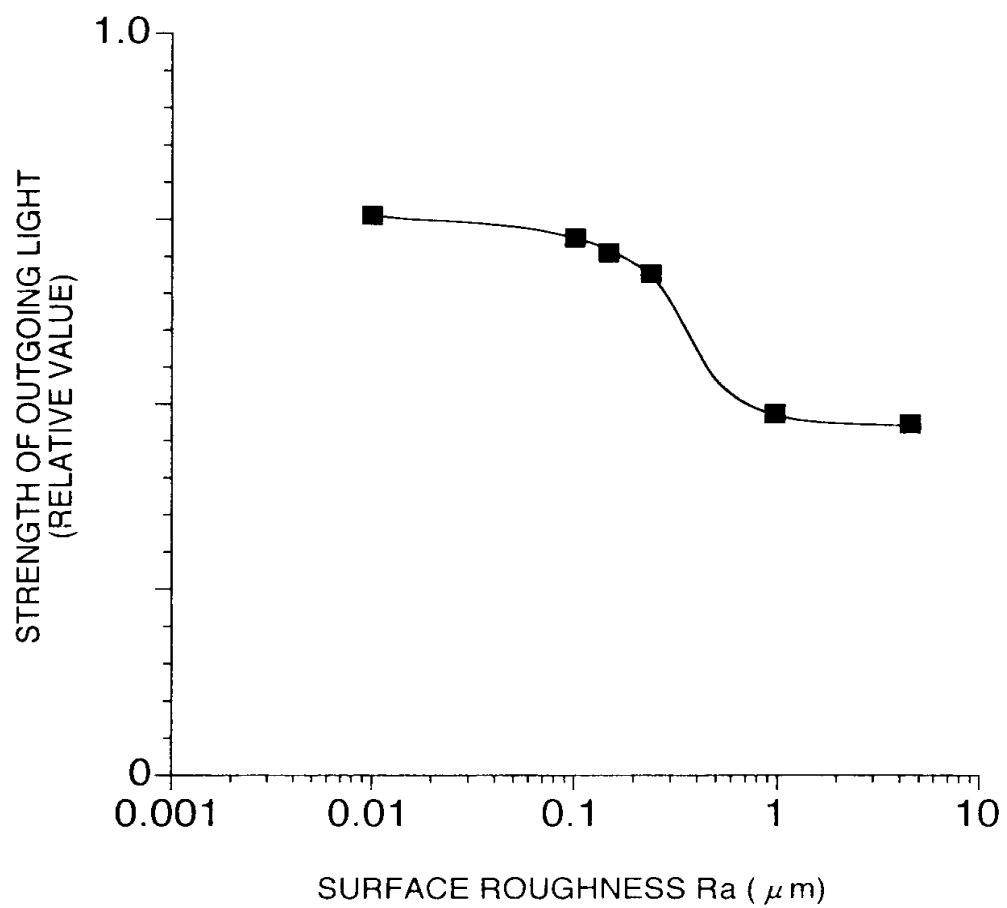


FIG.56

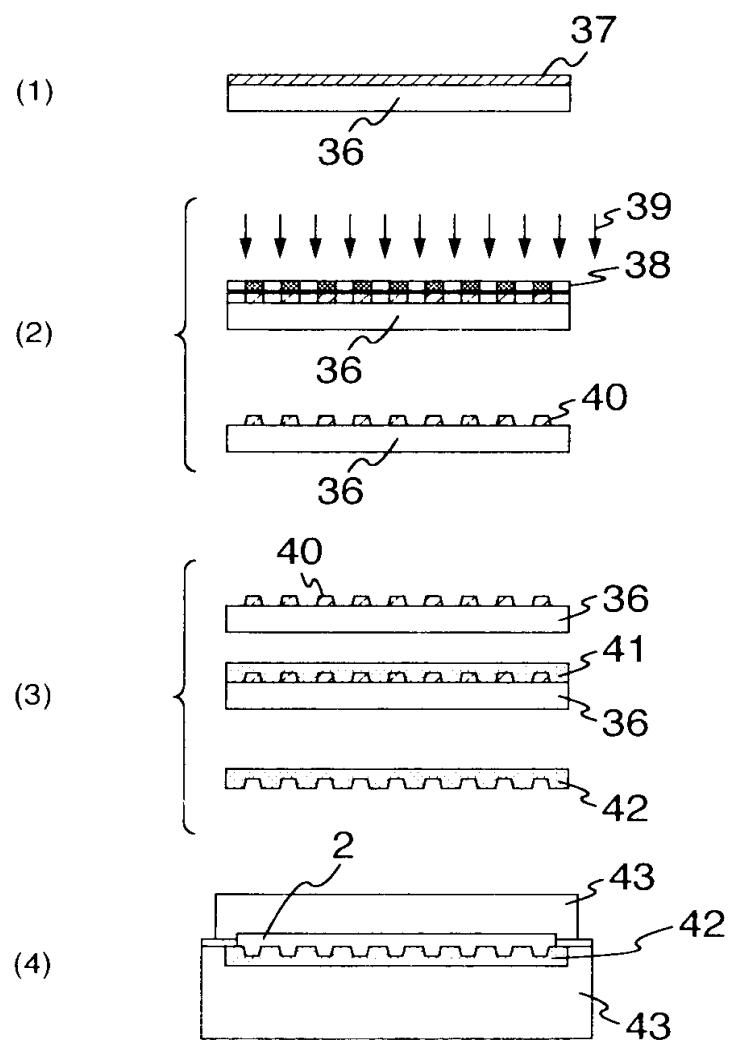


FIG.57

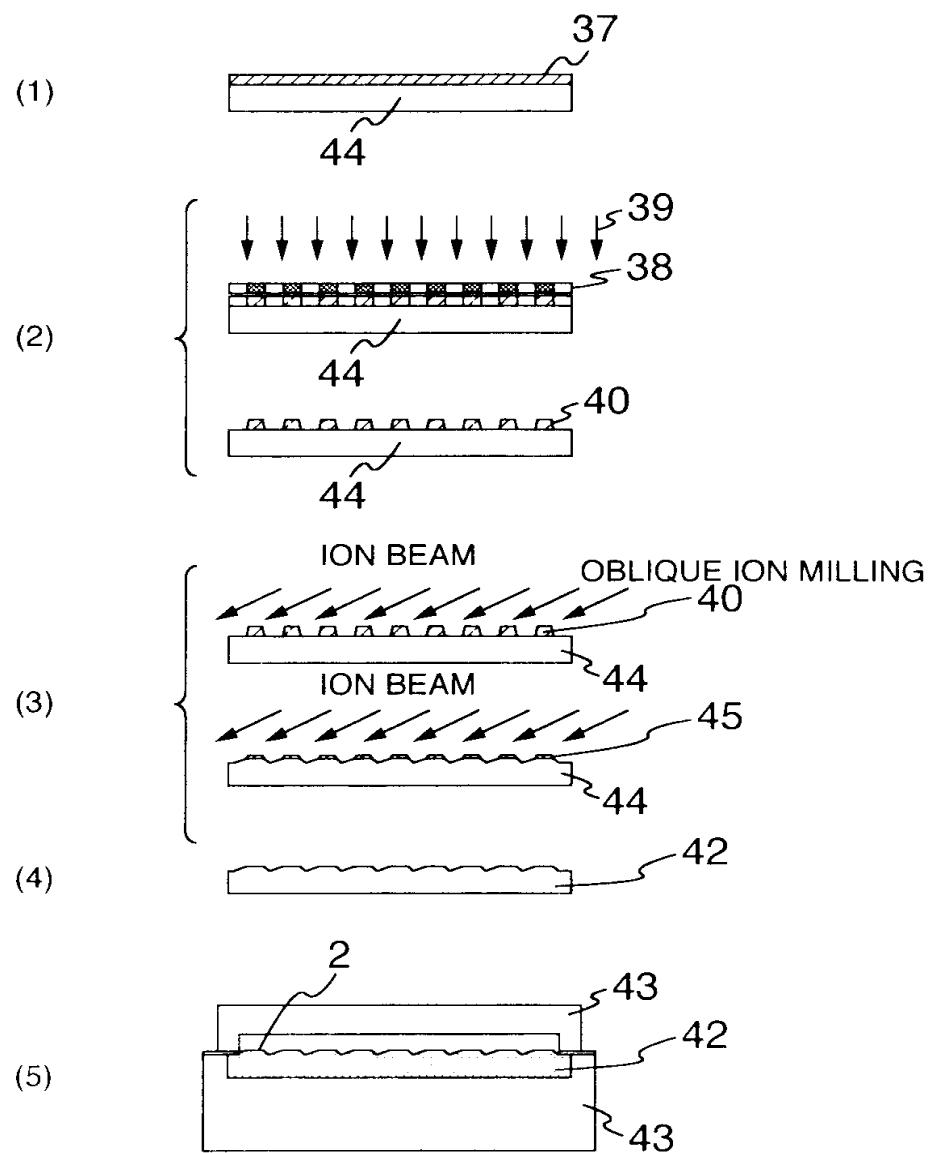


FIG.58

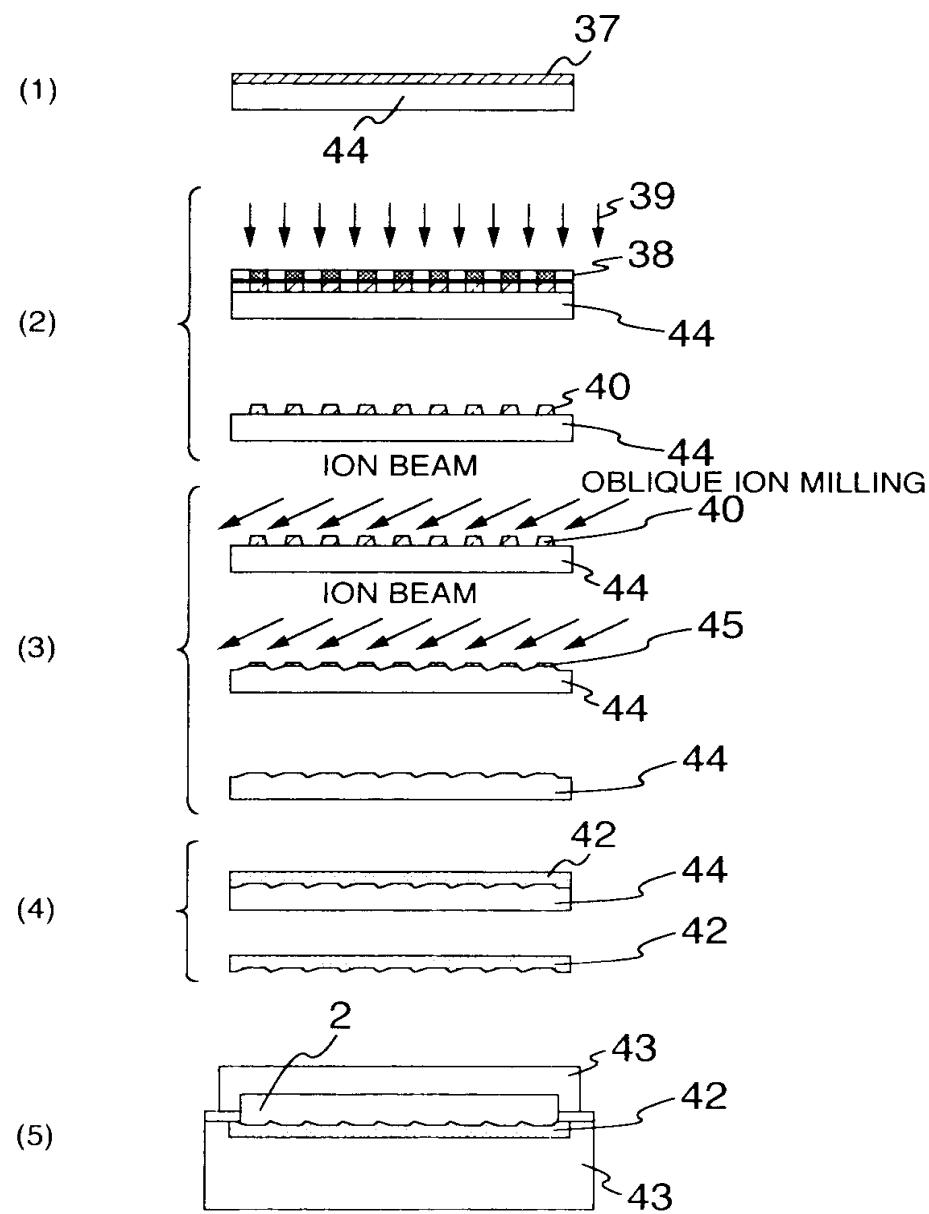
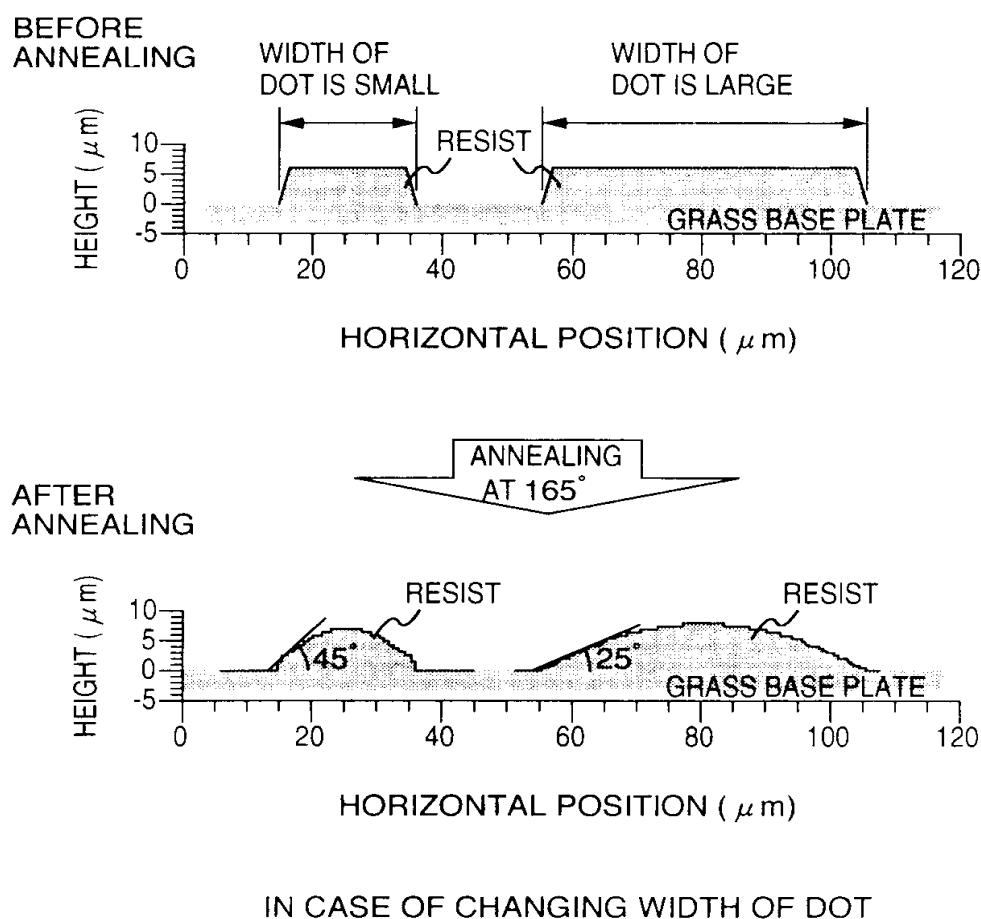


FIG.59

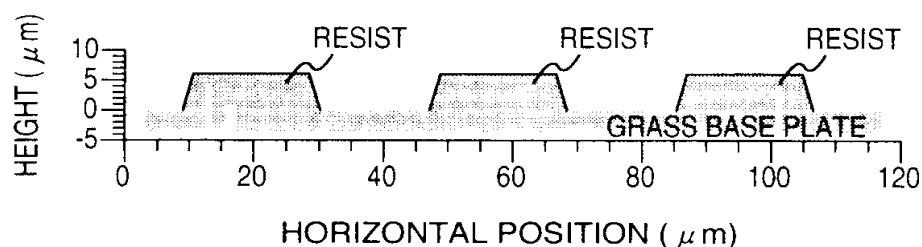


09/463776

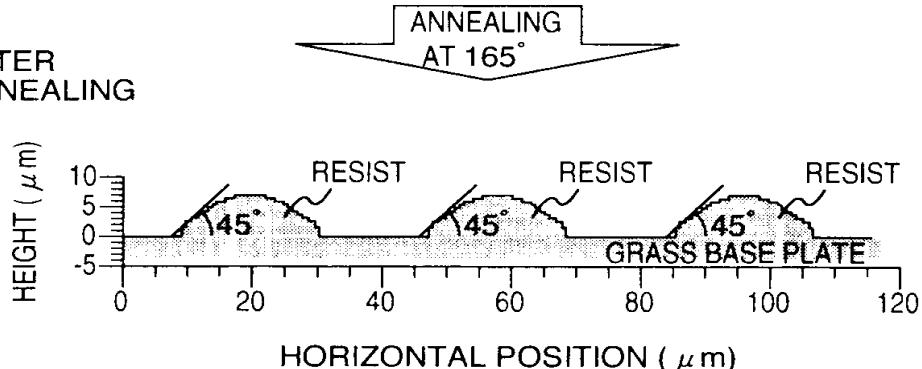
54 / 55

FIG.60

BEFORE
ANNEALING

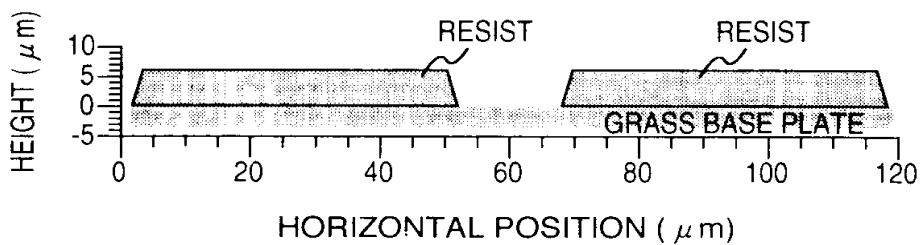


AFTER
ANNEALING

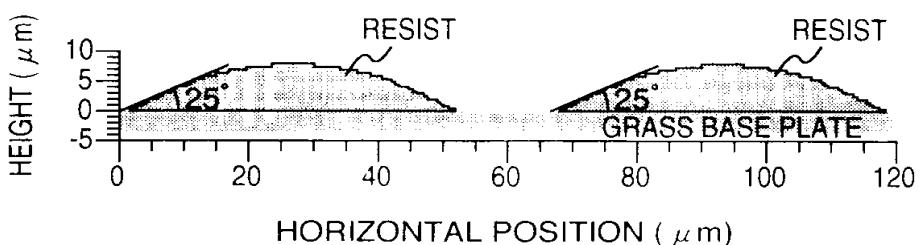


IN CASE THAT AVERAGE DISTANCE BETWEEN DOTS IS SMALL

BEFORE
ANNEALING



AFTER
ANNEALING



IN CASE THAT AVERAGE DISTANCE BETWEEN DOTS IS LARGE

FIG.61

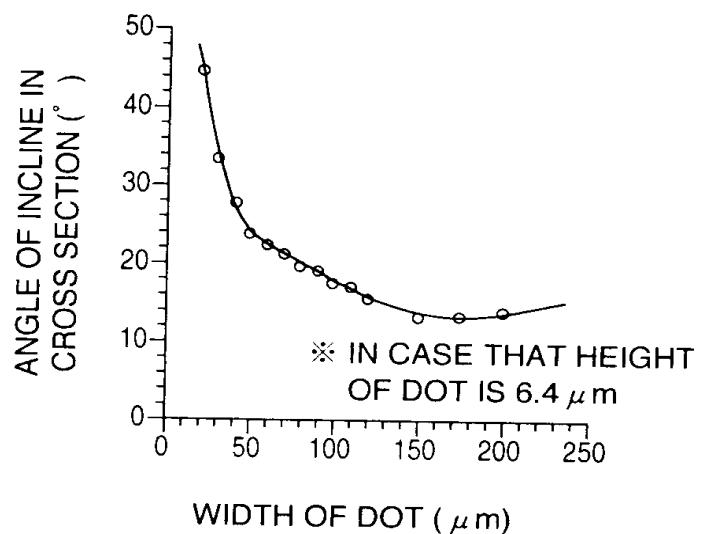


FIG.62

